A

PRACTICAL RECORD

BOOK

OF

COMPUTER SCIENCE (PCMC)

SECOND PUC

MORARJI DESAI RESIDENTIAL PU

SCIENCE COLLEGE, DUDDA, HASSAN

MORARJI DESAI RESIDENTIAL PU SCIENCE COLLEGE, DUDDA, HASSAN

Laboratory Certificate

This is to certify that Mr. / Mrs. …… has satisfactorily completed the course of experiments in practical **COMPUTER SCIENCE** prescribed by the **Pre-University, Bangalore** for **SECOND PUC (P.C.M.C)** course in the laboratory of this college in the year 2018-19.

Signature of the Lecturer Head of the Department

Date: ……..

Name of the Candidate : …….....

Register Number : …….....

Examination Centre : …….....

Date of Practical Examination: ……...

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<td>03</td>
<td>Generate the Employee details and compute the salary based on the department.
Create the following table EMPLOYEE
<table>
<tr><th>Field Name</th><th>Type</th></tr>
<tr><td>EMP_ID</td><td>NUMBER(4)</td></tr>
<tr><td>DEPT_ID</td><td>NUMBER(2)</td></tr>
<tr><td>EMP_NAME</td><td>VARCHAR2(15)</td></tr>
<tr><td>EMP_SALARY</td><td>NUMBER(5)</td></tr>
</table>
Create another table DEPARTMENT
<table>
<tr><th>Field Name</th><th>Type</th></tr>
<tr><td>DEPT_ID</td><td>NUMBER(2)</td></tr>
<tr><td>DEPT_NAME</td><td>VARCHAR2(20)</td></tr>
<tr><td>SUPERVISOR</td><td>VARCHAR2(20)</td></tr>
</table>
Assume the DEPARTMENT names as Purchase (Id-01), Accounts (Id-02), Sales (Id-03), and Apprentice (Id-04)
Enter 10 rows of data for table EMPLOYEE and 4 rows of data for DEPARTMENT table.
Write the SQL statements for the following:
1. Find the names of all employees who work for the Accounts department.
2. How many employees work for Accounts department?
3. What are the Minimum, Maximum and Average salary of employees working for Accounts department?
4. List the employees working for particular supervisor.
5. Retrieve the department names for each department where only one employee works.
6. Increase the salary of all employees in the sales department by 15%.
7. Add a new Colum to the table EMPLOYEE called BONUS NUMBER (5) and compute 5% of the salary to the said field.
8. Delete all the rows for the employee in the Apprentice department.</td>
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SECTION - A

C++ AND DATA STRUCTURES

PROGRAM 1:

Write a C++ program to find the frequency presence of an element in an array.

```
#include<iostream.h>
#include<conio.h>
class Frequency
{
private:
        int a[10], n, ele, count;                    //Data member
public:
        void readdata( );
        void findfreq( );                            //Member functions declaration
        void display( );
};

void Frequency::readdata( )                          //Member function definition
{
          cout<<"Enter the size of the array:"<<endl;
          cin>>n;
          cout<<"Enter the array elements:"<<endl;
          for(int i=0; i<n; i++)
          cin>>a[i];
          cout<<"Enter the element to find the frequency"<<endl;
          cin>>ele;
}

void Frequency::findfreq( )                          //Member function definition
{
          count=0;
          for(int i=0; i<n; i++)
          if(ele == a[i])                            //Traversing Operation
          count++;
}

void Frequency::display( )                           //Member function definition
{
          if(count > 0)
          cout<<ele<<" Occurs"<<count<<" Time";
          else
          cout<<ele<<" Does Not Exists";
}

void main( )                                         //Main function
{
        Frequency f;
```

```
        clrscr( );
        f.readdata( );
        f.findfreq( );
        f.display( );
        getch( );
}
```

OUTPUT 1:

```
Enter the size of the array:
5
Enter the array elements
2       6       2       8       1
Enter the element to find the frequency:
2
2 Occurs 2 Time
```

OUTPUT 2:

```
Enter the size of the array:
5
Enter the array elements
2       7       5       12      9
Enter the element to find the frequency:
4
4 Does Not Exist
```

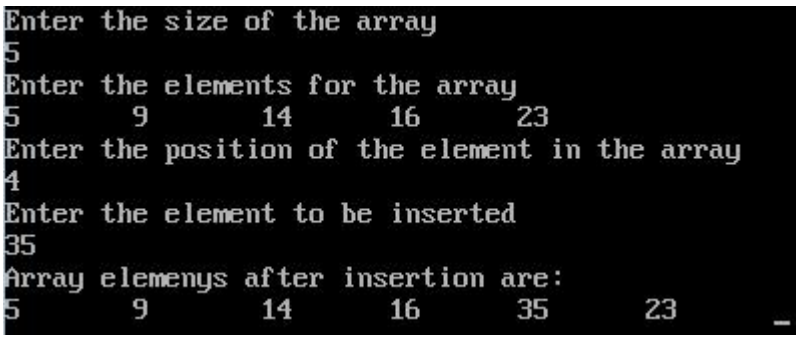
PROGRAM 2:

Write a C++ program to insert an element into an array at a given position.

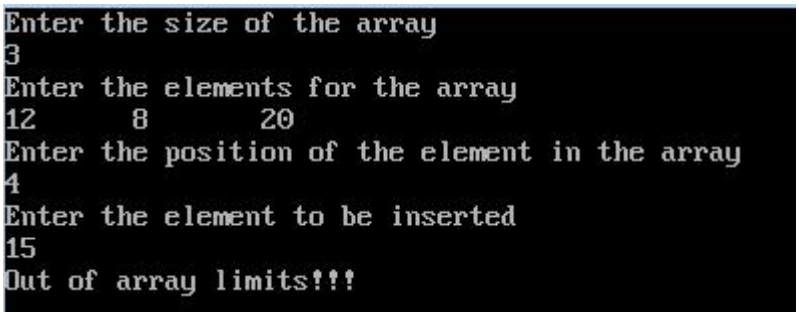
```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
class Insertion
{
        private:
                int a[10], n, pos, ele, i;                    //Data Members
        public:
                void readdata( );
                void insert( );                               // Member Function Declaration
                void display( );
};

void Insertion::readdata( )
{
        cout<<"Enter the size of the array"<<endl;
        cin>>n;
        cout<<"Enter the elements for the array"<<endl;
                for(i=0; i<n; i++)
                cin>>a[i];
        cout<<"Enter the position of the element in the array"<<endl;
        cin>>pos;
        cout<<"Enter the element to be inserted"<<endl;
        cin>>ele;
}

void Insertion::insert( )
{
        if(pos>n)
        {
                cout<<"Out of array limits!!!";
                getch( );
                exit(0);
        }
        else
        {
                for(i=n; i>=pos; i--)
                a[i+1] = a[i];                        // Shift array elements
                a[pos] = ele;                         // Insert the given element
                n = n+1;                              // Size of the array is incremented by 1
```

```
        }
}

void Insertion::display( )
{
        cout<<"Array elements after insertion are:"<<endl;
        for(i=0; i<n; i++)
        cout<<a[i]<<"\t";
}

void main( )
{
        Insertion i;
        clrscr( );
        i.readdata( );
        i.insert( );
        i.display( );
        getch( );
}
```

OUTPUT 1:



OUTPUT 2:



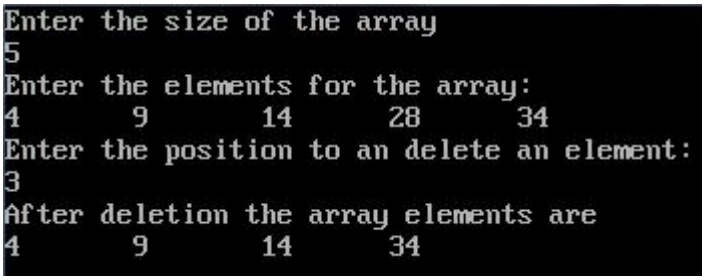
PROGRAM 3:

Write a C++ program to delete an element from an array from a given position.

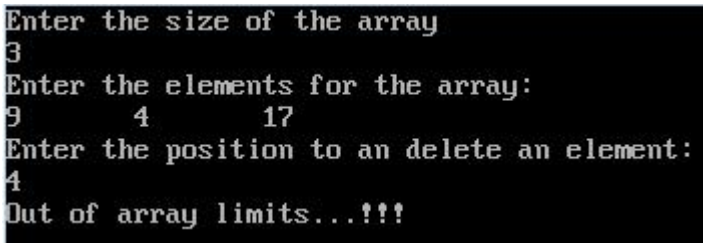
```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
class Deletion
{
        private:
                int a[10], n, pos, i;
        public:
                void readdata( );
                void delet( );
                void display( );
};

void Deletion::readdata( )
{
        cout<<"Enter the size of the array"<<endl;
        cin>>n;
        cout<<"Enter the elements for the array:"<<endl;
                for (i=0; i<n; i++)
                cin>>a[i];
        cout<<"Enter the position to an delete an element:\n";
        cin>>pos;
}

void Deletion::delet( )
{
        if(pos>n)
        {
                cout<<"Out of array limits...!!!";
                getch( );
                exit(0);
        }
        else
        {
                for(i=pos; i<n; i++)
                a[i] = a[i+1];                          // Move higher position element
                n = n-1;                                // Reduce size of the array by 1
        }
}
```

```
void Deletion::display( )
{
        cout<<"After deletion the array elements are"<<endl;
        for(i=0; i<n; i++)
        cout<<a[i]<<"\t";
}

void main( )
{
        Deletion d;
        clrscr();
        d.readdata( );
        d.delet( );
        d.display( );
        getch( );
}
```

OUTPUT 1:



OUTPUT 2:



PROGRAM 4:

Write a C++ program to sort the element of an array in ascending order using insertion sort.

```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>

class Sort
{
        private:
                int a[10], n, i;
        public:
                void readdata( );
                void insertionsort( );
                void display( );
};

void Sort::readdata( )
{
        cout<<"Enter the size of the array:"<<endl;
        cin>>n;
        cout<<"Enter the elements for the array:"<<endl;
                for(i=0; i<n; i++)
        cin>>a[i];
}

void Sort::insertionsort( )
{
        int j, temp;
        for(i=1; i<n; i++)
        {
                j = i;
                while(j >= 1)
                {
                        if(a[j] < a[j-1])
                        {
                                temp = a[j];
                                a[j] = a[j-1];
                                a[j-1] = temp;
                        }
                        j = j-1;
                }
        }
```

```
}

void Sort::display( )
{
        for(i=0; i<n; i++)
        cout<<a[i]<<"\t";
        cout<<endl;
}

void main( )
{
        Sort s;
        clrscr();
        s.readdata( );
        cout<<"Unsorted List....."<<endl;
        cout<<"********************"<<endl;
        s.display( );
        s.insertionsort( );
        cout<<"Sorted List........"<<endl;
        cout<<"********************"<<endl;
        s.display( );
        getch( );
}
```

OUTPUT 1:

```
Enter the size of the array:
5
Enter the elements for the array:
25      40      14      8       33
Unsorted List......
********************
25      40      14      8       33
Sorted List........
********************
8       14      25      33      40
```

OUTPUT 2:

```
Enter the size of the array:
5
Enter the elements for the array:
-32     -4      0       -5      -23
Unsorted List......
********************
-32     -4      0       -5      -23
Sorted List........
********************
-32     -23     -5      -4      0
```

PROGRAM 5:

Write a C++ program to search for a given element in an array using binary search method.

```
#include<iostream.h>
#include<conio.h>

class Search
{
        private:
                int a[10], n, ele, loc, beg, end, mid, i;
        public:
                void readdata( );
                void bsearch( );
                void display( );
};

void Search::readdata( )
{
        cout<<"Enter the size of the array:"<<endl;
        cin>>n;
        cout<<"Enter the array elements in sorted order:"<<endl;
                for(i=0;i<n;i++)
                cin>>a[i];
        cout<<"Enter the element to search:"<<endl;
        cin>>ele;
}

void Search::bsearch( )
{
        loc = -1;                       // Assume that element does not exist
        beg = 0;                        // First element of the array
        end = n-1;                      // Second element of the array
        while(beg <= end)
        {
                mid = (beg+end)/2;
                if(ele == a[mid])       // Element found at mid
                {
                        loc = mid;
                        break;
                }
                else
                if(ele < a[mid])
                        end = mid-1;
```

```
                else
                        beg = mid+1;
        }
}

void Search::display( )
{
        if(loc == -1)
                cout<<ele<<" Element does not exist...!!!";
        else
                cout<<ele<<" Found at Location:"<<loc+1;
}

void main( )
{
        Search s;
        clrscr( );
        s.readdata( );
        s.bsearch( );
        s.display( );
        getch( );
}
```

OUTPUT 1:

```
Enter the size of the array:
5
Enter the array elements in sorted order:
12      23      39      47      57
Enter the element to search:
39
39 Found at Location:3
```

OUTPUT 2:

```
Enter the size of the array:
4
Enter the array elements in sorted order:
5       8       14      17
Enter the element to search:
22
22 Element does not exist...!!!
```

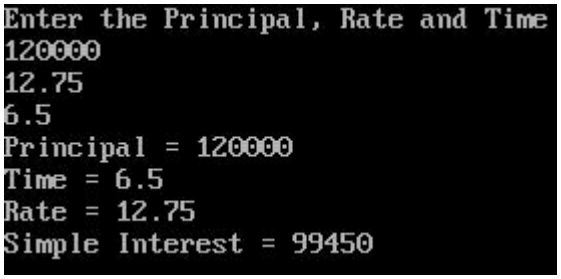
PROGRAM 6:

Write a C++ program to create a class with data members principal, time and rate. Create a member function to accept data values, to compute simple interest and to display the result.

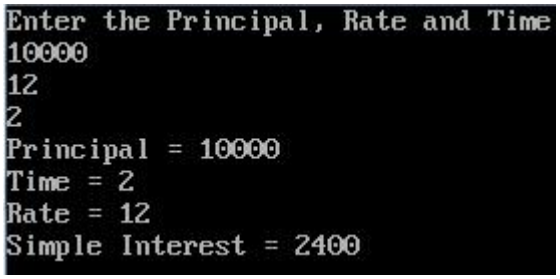
```
#include<iostream.h>
#include<conio.h>

class SimpleInterest
{
        private:
                float principal,rate,time,si;                   //Data Members
        public:
                void readdata( );
                void compute( );                                //Member Functions Declaration
                void display( );
};

void SimpleInterest::readdata( )                                //Member Function Definition
{
        cout<<"Enter the Principal, Rate and Time"<<endl;
        cin>>principal>>rate>>time;
}

void SimpleInterest::compute( )                                 //Member Function Definition
{
        si=(principal * time * rate)/100;
}

void SimpleInterest::display( )                                 //Member Function Definition
{
        cout<<"Principal = "<<principal<<endl;
        cout<<"Time = "<<time<<endl;
        cout<<"Rate = "<<rate<<endl;
        cout<<"Simple Interest = "<<si<<endl;
}

void main( )
{
        SimpleInterest si;
        clrscr( );
        si.readdata( );
        si.compute( );
        si.display( );
```

```
    getch( );
}
```

OUTPUT 1:



OUTPUT 2:



PROGRAM 7:

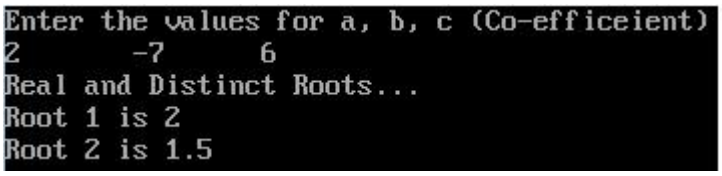
Write a C++ program to create a class with data members a, b, c and member functions to input data, compute the discriminant based on the following conditions and print the roots.

- **If discriminant = 0, print the roots are equal and their value.**
- **If discriminant > 0, print the real roots and their values.**
- **If discriminant < 0, print the roots are imaginary and exit the program.**

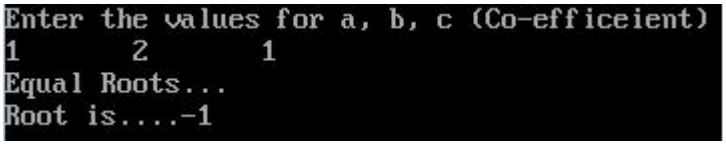
```
#include<iostream.h>
#include<conio.h>
#include<math.h>
class Quadratic
{
        private:
                int a, b, c;
                float disc, x, x1, x2;
        public:
                void readdata( );
                void compute( );
                void display( );
};

void Quadratic::readdata( )
{
        cout<<"Enter the values for a, b, c (Co-efficeient)"<<endl;
        cin>>a>>b>>c;
}

void Quadratic::compute( )
{
        disc = b*b-4*a*c;
}

void Quadratic::display( )
{
        compute( );
        if(disc == 0)
        {
                cout<<"Equal Roots..."<<endl;
                x=-b/(2*a);
                cout<<"Root is...."<<x;
        }
        else if(disc>0)
        {
```

```
                cout<<"Real and Distinct Roots..."<<endl;
                x1=(-b+sqrt(disc))/(2*a);
                x2=(-b-sqrt(disc))/(2*a);
                cout<<"Root 1 is "<<x1<<endl;
                cout<<"Root 2 is "<<x2<<endl;
        }
        else
                cout<<"Imaginary Roots..."<<endl;
}

void main( )
{
        Quadratic q;
        clrscr( );
        q.readdata( );
        q.display( );
        getch( );
}
```

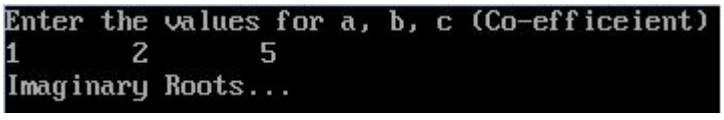
OUTPUT 1:



OUTPUT 2:



OUTPUT 3:



PROGRAM 8:

Write a C++ program to find the area of square/ rectangle/ triangle using function overloading.

```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
#include<math.h>

class Funcoverload
{
        public:
                float area(float a)                     //To compute area of square
                {
                        return a*a;
                }

                float area(float l,float b)             //To compute area of rectangle
                {
                        return l*b;
                }

                float area(float s1,float s2,float s3)  //To compute area of triangle
                {
                        float s=(s1+s2+s3)/2;
                        return sqrt(s*(s-s1)*(s-s2)*(s-s3));
                }
};

void main()
{
        float s1,s2,s3;
        int choice;
        Funcoverload f;
        clrscr( );
        while(1)
        {
                cout<<"Program demonstrates Function Overloaded...!!!"<<endl;
                cout<<"1.To find area of square"<<endl;
                cout<<"2.To find area of rectangle"<<endl;
                cout<<"3.To find the area of triangle"<<endl;
                cout<<"4.Exit"<<endl;
                cout<<"Enter your Choice"<<endl;
                cin>>choice;
```

```
            switch(choice)
            {
                case 1: cout<<"Enter the input for square"<<endl;
                        cin>>s1;
                        cout<<"Area of Square= "<<f.area(s1)<<endl;
                        break;
                case 2: cout<<"Enter the input for rectangle"<<endl;
                        cin>>s1>>s2;
                        cout<<"Area of Rectangle= "<<f.area(s1,s2)<<endl;
                        break;
                case 3: cout<<"Enter the input for triangle"<<endl;
                        cin>>s1>>s2>>s3;
                        cout<<"Area of Triangle= "<<f.area(s1,s2,s3)<<endl;
                        break;
                case 4: cout<<"End of Program....."<<endl;
                        getch();
                        exit(1);
                default:cout<<"Invallid Choice....!!!"<<endl;
            }
            getch( );
        }
}
```

OUTPUT:

```
Program demonstrates Function Overloaded...!!!
1.To find area of square
2.To find area of rectangle
3.To find the area of triangle
4.Exit
Enter your Choice
1
Enter the input for square
4
Area of Square= 16
Program demonstrates Function Overloaded...!!!
1.To find area of square
2.To find area of rectangle
3.To find the area of triangle
4.Exit
Enter your Choice
2
Enter the input for rectangle
5       6
Area of Rectangle= 30
```

```
Program demonstrates Function Overloaded...!!!
1.To find area of square
2.To find area of rectangle
3.To find the area of triangle
4.Exit
Enter your Choice
3
Enter the input for triangle
3       4       5
Area of Triangle= 6
Program demonstrates Function Overloaded...!!!
1.To find area of square
2.To find area of rectangle
3.To find the area of triangle
4.Exit
Enter your Choice
4
End of Program.....
```

PROGRAM 9:

Write a C++ program to find cube of a number using inline function.

```
#include<iostream.h>
#include<conio.h>

inline int cube(int a)                          //Inline function definition
{
        return a*a*a;
}

void main()                                     //Main Function
{
        int n;
        clrscr( );
        cout<<"Enter the input number"<<endl;
        cin>>n;
        cout<<"Cube of"<<" = "<<cube(n);        //Inline function call
        getch( );
}
```

OUTPUT 1:

```
Enter the input number
3
Cube of  = 27
```

OUTPUT 2:

```
Enter the input number
5
Cube of  = 125
```

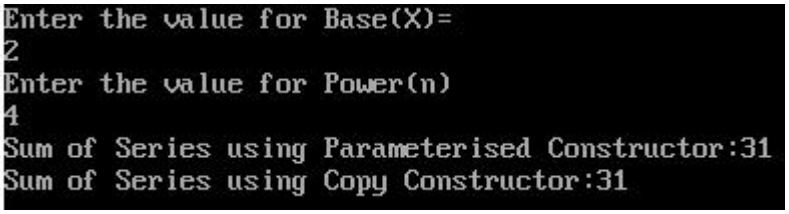
PROGRAM 10:

Write a C++ program to find sum of the series $1 + x + x^2 + x^3 + \ldots.x^n$ using constructors.

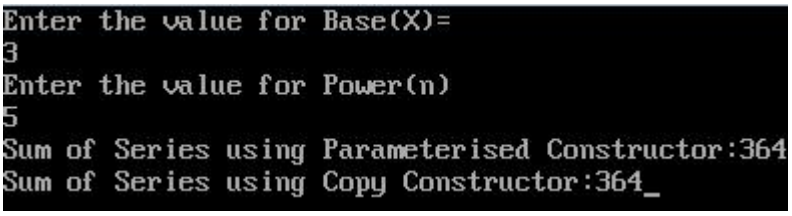
```
#include<iostream.h>
#include<conio.h>
#include<math.h>
class Series
{
        private:
                int sum, x, n;
        public:
                Series(int y, int m)                    // Parameterized Constructor
                {
                        sum = 1;
                        x = y;
                        n = m;
                }
        int sumseries( );
};

int Series::sumseries( )
{
        for(int i=1;i<=n;i++)
                sum=sum+pow(x,i);
        return sum;
}

void main()
{
        int x,n;
        clrscr( );
        cout<<"Enter the value for Base(X)="<<endl;
        cin>>x;
        cout<<"Enter the value for Power(n)"<<endl;
```

```
        cin>>n;
        Series s1(x,n);                          // Calling Parameterized Constructor
        Series s2 = s1;                          // Copy Constructor
        cout<<"Sum of Series using Parameterised Constructor:";
        cout<<s1.sumseries()<<endl;
        cout<<"Sum of Series using Copy Constructor:";
        cout<<s2.sumseries( );
        getch( );
}
```

OUTPUT 1:



OUTPUT 2:



PROGRAM 11:

Create a base class containing the data member roll number and name. Also create a member function to read and display the data using the concept of single level inheritance. Create a derived class that contains marks of two subjects and total marks as the data members.

```
#include<iostream.h>
#include<conio.h>

class Student                                          // Base Class
{
        private:
                long rollnumber;
                char name[20];
        public:
                void readdata( )
                {
                        cout<<"Enter the Roll Number: ";
                        cin>>rollnumber;
                        cout<<"Enter the Student Name:";
                        cin>>name;
                }
                void display( )
                {
                        cout<<"\nRoll Number         :"<<rollnumber<<endl;
                        cout<<"Student Name:"<<name<<endl;
                }
};

class Report : public Student                          // Derived class
{
        private:
                int marks1, marks2, total;
        public:
                void readmarks( )
                {
                        cout<<"\nEnter Subject 1 Marks: ";
                        cin>>marks1;
                        cout<<"Enter Subject 2 Marks: ";
                        cin>>marks2;
                }
                void compute( )
                {
                        total = marks1 + marks2;
```

```
                cout<<endl<<"Total Marks  : "<<total;
            }
};

void main( )
{
        Report R;                       // Create an object R to process Student data
        clrscr( );
        R.readdata( );
        R.display( );
        R.readmarks( );
        R.compute( );
        getch( );
}
```

OUTPUT 1:

```
Enter the Roll Number: 243850
Enter the Student Name:Keerthi

Roll Number      :243850
Student Name     :Keerthi

Enter Subject 1 Marks: 89
Enter Subject 2 Marks: 92

Total Marks   : 181_
```

OUTPUT 2:

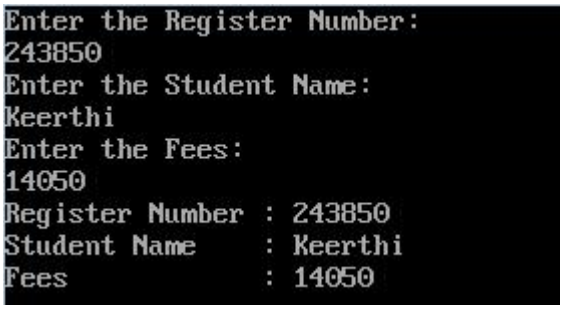
```
Enter the Roll Number: 123456
Enter the Student Name:Akash

Roll Number      :123456
Student Name     :Akash

Enter Subject 1 Marks: 65
Enter Subject 2 Marks: 78

Total Marks   : 143
```

PROGRAM 12:

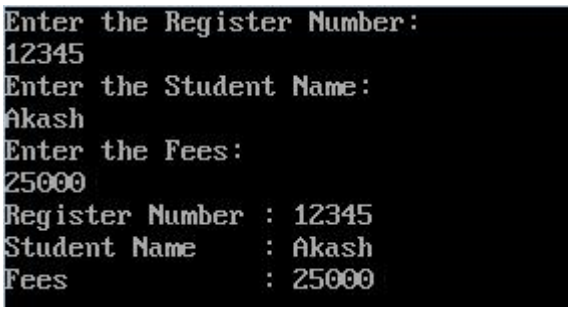
Create a class containing the following data members Register_No, Name and Fees. Also create a member function to read and display the data using the concept of pointers to objects.

```
#include<iostream.h>
#include<conio.h>

class Student
{
        private:
                long regno;
                char name[20];
                float fees;
        public:
                void readdata( );
                void display( );
};

void Student::readdata( )
{
        cout<<"Enter the Register Number:"<<endl;
        cin>>regno;
        cout<<"Enter the Student Name:"<<endl;
        cin>>name;
        cout<<"Enter the Fees:"<<endl;
        cin>>fees;
}

void Student::display( )
{
        cout<<"Register Number          : "<<regno<<endl;
        cout<<"Student Name    : "<<name<<endl;
        cout<<"Fees                     : "<<fees<<endl;
}

void main( )
{
        Student *S;                             // Create a pointer to point Student object
        clrscr( );
        S->readdata( );                         // Access Student data member using a pointer
        S->display( );                          // Display data using a pointer
        getch( );
}
```

OUTPUT 1:



OUTPUT 2:



PROGRAM 13:

Write a C++ program to perform push items into the stack.

```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
#define MAX 3
class Stack
{
        private:
        int s[MAX], top;
        public:
                Stack( )                        // Constructor to initialize TOP pointer
                {
                        top = -1;
                }
                void push(int);                 // Member Function Declaration
                void display( );
};
void Stack::push(int item)
{
        if(top == MAX-1)
                cout<<"Stack is Full....Overflow!!!"<<endl;
        else
        {
                top++;
                s[top]=item;
        }
}
void Stack::display( )
{
        if(top == -1)
                cout<<"Empty Stack!!!"<<endl;
        else
        {
                for(int i=0; i<=top; i++)
                        cout<<endl<<s[i];
                        cout<<"-->top element"<<endl;
        }
        getch( );
}
void main( )
{
        Stack s;
        int choice, ele;
```

```
        clrscr( );
        while(1)
        {
                cout<<"Stack Push Operation Menu"<<endl;
                cout<<"1. PUSH"<<endl;
                cout<<"2. DISPLAY"<<endl;
                cout<<"3. EXIT"<<endl;
                cout<<"Enter your Choice"<<endl;
                cin>>choice;
                switch(choice)
                {
                        case 1: cout<<"Push Operation"<<endl;
                                cout<<"Enter the value of element:"<<endl;
                                cin>>ele;
                                s.push(ele);
                                break;
                        case 2: cout<<"Stack elements are:"<<endl;
                                s.display( );
                                break;
                        case 3: cout<<"End of Stack Operation"<<endl;
                                getch( );
                                exit(1);
                        default:cout<<"Invalid choice.....!!!"<<endl;
                }
                getch();
    }
}
```

OUTPUT:

```
Stack Push Operation Menu
1. PUSH
2. DISPLAY
3. EXIT
Enter your Choice
2
Stack elements are:
Empty Stack!!!
Stack Push Operation Menu
1. PUSH
2. DISPLAY
3. EXIT
Enter your Choice
1
Push Operation
Enter the value of element:
10
Stack Push Operation Menu
1. PUSH
2. DISPLAY
3. EXIT
Enter your Choice
1
```

```
Push Operation
Enter the value of element:
20
Stack Push Operation Menu
1. PUSH
2. DISPLAY
3. EXIT
Enter your Choice
1
Push Operation
Enter the value of element:
30
Stack Push Operation Menu
1. PUSH
2. DISPLAY
3. EXIT
Enter your Choice
1
Push Operation
Enter the value of element:
40
Stack is Full....Overflow!!!
```

```
Stack Push Operation Menu
1. PUSH
2. DISPLAY
3. EXIT
Enter your Choice
2
Stack elements are:

10
20
30-->top element
Stack Push Operation Menu
1. PUSH
2. DISPLAY
3. EXIT
Enter your Choice
3
End of Stack Operation
```

PROGRAM 14:

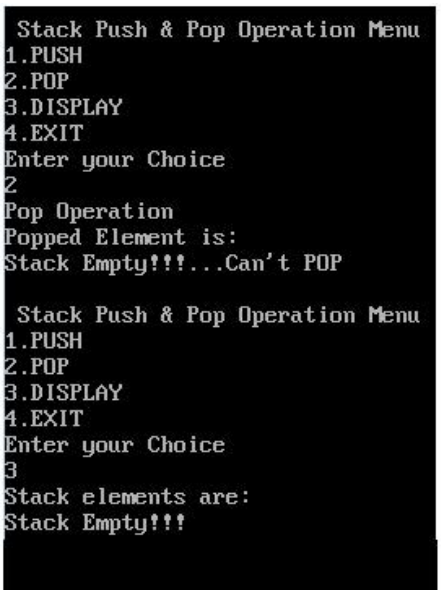
Write a C++ program to perform pop items into the stack.

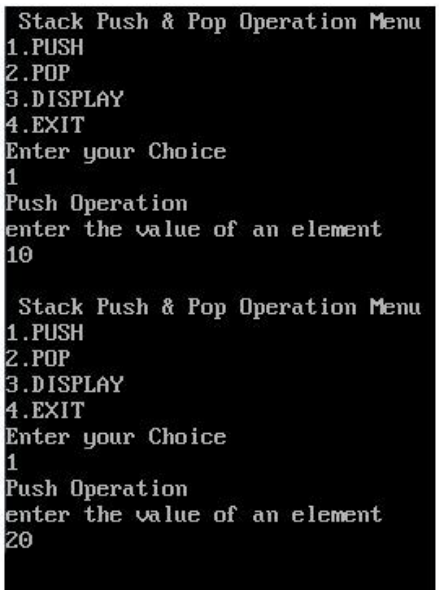
```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
#define MAX 3
class Stack
{
        private:
                int s[MAX], top;
        public:
                Stack()                         // Constructor to initialize TOP pointer
                {
                        top = -1;
                }
                void push(int);
                int pop( );                     // Member Functions Declaration
                void display( );
};

void Stack::push(int item)
{
        if(top == MAX-1)
                cout<<"Stack is Full....Overflow!!!"<<endl;
        else
        {
                top++;
                s[top]=item;
        }
}

int Stack::pop()
{
        int item;
        if(top == -1)
                cout<<"Stack Empty!!!...Can't POP"<<endl;
        else
        {
                item = s[top];
                top--;
        }
        return item;
}
```

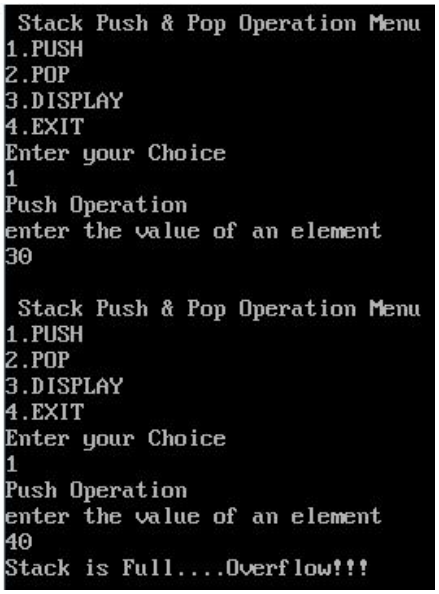
```
void Stack::display( )
{
        if(top == -1)
                cout<<"Stack Empty!!!"<<endl;
        else
        {
                for(int i=0; i<=top; i++)
                cout<<endl<<s[i];
                cout<<"-->top element"<<endl;
        }
}
void main( )
{
        Stack s;
        int choice, ele;
        clrscr( );
        while(1)
        {
                cout<<"\n Stack Push & Pop Operation Menu"<<endl;
                cout<<"1.PUSH"<<endl;
                cout<<"2.POP"<<endl;
                cout<<"3.DISPLAY"<<endl;
                cout<<"4.EXIT"<<endl;
                cout<<"Enter your Choice"<<endl;
                cin>>choice;
                switch(choice)
                {
                        case 1: cout<<"Push Operation"<<endl;
                                cout<<"enter the value of an element"<<endl;
                                cin>>ele;
                                s.push(ele);
                                break;
                        case 2: cout<<"Pop Operation"<<endl;
                                cout<<"Popped Element is: "<<s.pop( );
                                break;
                        case 3: cout<<"Stack elements are:"<<endl;
                                s.display( );
                                break;
                        case 4: cout<<"End of the Stack Operetion"<<endl;
                                getch( );
                                exit(1);
                        default:cout<<"Invalid Choice...!!!"<<endl;
                        break;
                }
                getch();
        }
```

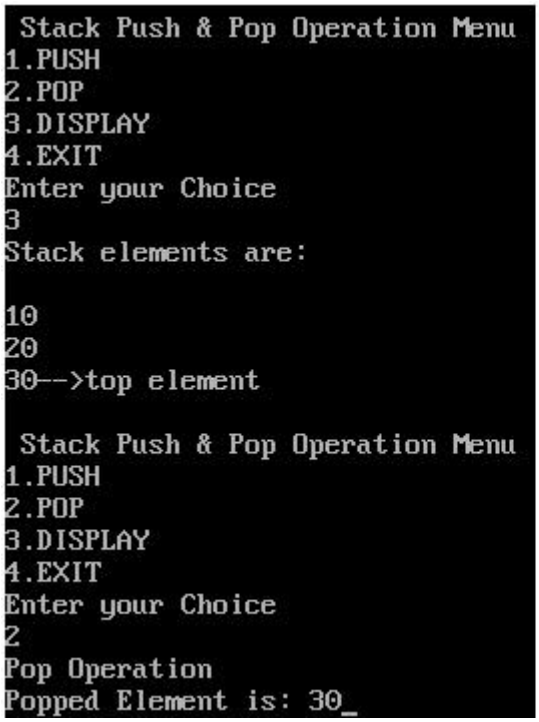
}

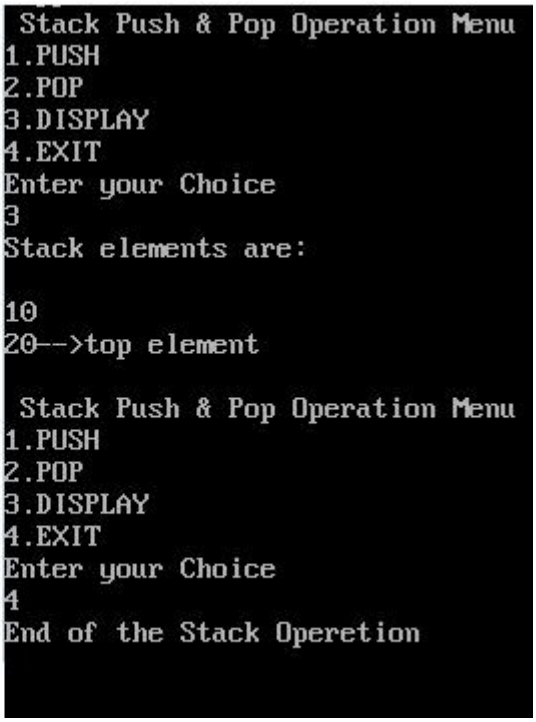
OUTPUT:


Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
2
Pop Operation
Popped Element is:
Stack Empty!!!...Can't POP
Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
3
Stack elements are:
Stack Empty!!!


Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
1
Push Operation
enter the value of an element
10
Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
1
Push Operation
enter the value of an element
20


Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
1
Push Operation
enter the value of an element
30
Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
1
Push Operation
enter the value of an element
40
Stack is Full....Overflow!!!


Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
3
Stack elements are:
10
20
30-->top element
Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
2
Pop Operation
Popped Element is: 30


Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
3
Stack elements are:
10
20-->top element
Stack Push & Pop Operation Menu
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your Choice
4
End of the Stack Operetion

PROGRAM 15:

Write a C++ program to perform Enqueue and Dequeue.

```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
#define MAX 3
class Queue
{
        private:
                int q[MAX],front,rear;
        public:
                Queue()                         // Constructor to intialize FRONT and REAR pointer
                {
                        front = -1;
                        rear = -1;
                }
                void enqueue(int);
                int dequeue();        // Member Functions Declaration
                void display();
};
void Queue::enqueue(int item)
{
        if(rear == MAX-1)
        {
                cout<<"Queue is full.....Overflow!!!"<<endl;
                getch( );
                exit(0);
    }
        if(front == -1)
        {
                front = 0;
                rear = 0;
        }
        else
                rear++;
                q[rear] = item;
                cout<<"Item Inserted: "<<item<<endl;
}

int Queue::dequeue()
{
        int item;
        if(front == -1)
        {
```

```
                cout<<"Queue is Empty....Underflow!!!"<<endl;
                //getch();
                //exit(1);
        }
        item = q[front];
        if(front == rear)
        {
                front = -1;
                rear = -1;
        }
        else
                front++;
        return item;
}

void Queue::display()
{
        if(front == -1)
                cout<<"Queue is Empty!!!"<<endl;
        else
                for(int i=front; i<=rear; i++)
                        cout<<q[i]<<endl;
}

void main()
{
        int ele, choice;
        Queue q;
        clrscr( );
        while(1)
        {
                cout<<"\nQueue Operation Menu"<<endl;
                cout<<"1.Adding Element"<<endl;
                cout<<"2.Deleting Element"<<endl;
                cout<<"3.Display"<<endl;
                cout<<"4.Exit"<<endl;
                cout<<"Enter your Choice"<<endl;
                cin>>choice;
                switch(choice)
                {
                        case 1: cout<<"Enter the element to be inserted"<<endl;
                                cin>>ele;
                                q.enqueue(ele);
                                break;
                        case 2: cout<<"Deleted Item = "<<q.dequeue( );
                                break;
```

```
                    case 3: cout<<"The Queue Contents:"<<endl;
                            q.display( );
                            break;
                    case 4: cout<<"End of Queue Operation"<<endl;
                            getch();
                            exit(1);
                    default:cout<<"Invalid Choice...!!!"<<endl;
                }
                getch();
        }
}
```

OUTPUT:

```
Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
2
Deleted Item =
Queue is Empty....Underflow!!!

Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
3
The Queue Contents:
Queue is Empty!!!
```

```
Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
1
Enter the element to be inserted
10
Item Inserted: 10

Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
1
Enter the element to be inserted
20
Item Inserted: 20
```

```
Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
1
Enter the element to be inserted
30
Item Inserted: 30

Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
1
Enter the element to be inserted
40
Queue is full.........Overflow!!!
```

```
Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
3
The Queue Contents:
10
20
30

Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
2
Deleted Item = 10
```

```
Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
2
Deleted Item = 20
Queue Operation Menu
1.Adding Element
2.Deleting Element
3.Display
4.Exit
Enter your Choice
3
The Queue Contents:
30
```

SECTION - B

STRUCTURED QUERY LANGUAGE (SQL)

PROGRAM 1:

Generate the electricity bill for one customer.

Create a table for house hold Electricity bill with the following fields.

Field Name	Type
RR_NO	VARCHAR2(10)
CUS_NAME	VARCHAR2(15)
BILLING_DATE	DATE
UNITS	NUMBER(4)

Insert 10 records into the table.

1. Check the structure of table and note your observation.
2. Add two fields to the table.
    a. BILL_AMT NUMBER(6,2)
    b. DUE_DATE DATE
3. Compute the bill amount for each customer as per the following rules.
    a. MIN_AMT Rs. 50
    b. First 100 units Rs 4.50/Unit
    c. >100 units Rs. 5.50/Unit
4. Compute due date as BILLING_DATE + 15 Days
5. List all the bills generated.

Solution:

First we have to create the table **EBILL** using **CREATE TABLE** command.

```
SQL> CREATE TABLE EBILL
  2  (
  3   RR_NO  VARCHAR2(10),
  4   CUS_NAME VARCHAR(15),
  5   BILLING_DATE DATE,
  6   UNITS  NUMBER(4)
  7  );

Table created.
```

Insert 10 records into the table using INSERT commands

```
SQL> INSERT INTO EBILL VALUES ('EH 1003', 'ARUN KUMAR' ,'12-MAR-16',98);
SQL> INSERT INTO EBILL VALUES ('EH 2005', 'NAVEEN' ,'14-MAR-16',108);
SQL> INSERT INTO EBILL VALUES ('EH 2007','VARUN' ,'18-FEB-16',157);
SQL> INSERT INTO EBILL VALUES ('EH 3009', 'DAVID' ,'11-APR-16',77);
SQL> INSERT INTO EBILL VALUES ('EH 3010', 'JHON' ,'01-MAR-16',89);
SQL> INSERT INTO EBILL VALUES ('EH 3013', 'AKSHAY' ,'02-FEB-16',68);
SQL> INSERT INTO EBILL VALUES ('EH 1010', 'CHANDRU' ,'12-MAR-16',108);
SQL> INSERT INTO EBILL VALUES ('EH 1008', 'GHANAVI' ,'12-MAR-16',132);
SQL> INSERT INTO EBILL VALUES ('EH 2105', 'DRUVA' ,'12-MAR-16',87);
```

SQL> INSERT INTO EBILL VALUES ('EH 3041', 'SHREYA' ,'12-MAR-16',127);

```
SQL> SELECT * FROM EBILL;

RR_NO      CUS_NAME        BILLING_D      UNITS
---------- --------------- --------- ----------
EH 1003    ARUN KUMAR      12-MAR-16          98
EH 2005    NAVEEN          14-MAR-16         108
EH 2007    VARUN           18-FEB-16         157
EH 3009    DAVID           11-APR-16          77
EH 3010    JHON            01-MAR-16          89
EH 3013    AKSHAY          02-FEB-16          68
EH 1010    CHANDRU         12-MAR-16         108
EH 1008    GHANAVI         12-MAR-16         132
EH 2105    DRUVA           12-MAR-16          87
EH 3041    SHREYA          12-MAR-16         127

10 rows selected.
```

1. Check the structure of table and note your observation.

```
SQL> DESC EBILL;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 RR_NO                                              VARCHAR2(10)
 CUS_NAME                                           VARCHAR2(15)
 BILLING_DATE                                       DATE
 UNITS                                              NUMBER(4)
```

2. Add two fields to the table.

a. BILL_AMT NUMBER(6,2)

b. DUE_DATE DATE

```
SQL> ALTER TABLE EBILL ADD(BILL_AMT NUMBER(6,2));

Table altered.

SQL> ALTER TABLE EBILL ADD(DUE_DATE DATE);

Table altered.
```

3. Compute the bill amount for each customer as per the following rules.

a. MIN_AMT Rs. 50

b. First 100 units Rs 4.50/Unit

c. >100 units Rs. 5.50/Unit

COMMAND 1:

```
SQL> UPDATE EBILL SET BILL_AMT=100 + UNITS *4.25 WHERE UNITS <=100;

5 rows updated.
```

COMMAND 2:

```
SQL> UPDATE EBILL SET BILL_AMT=100 + 100 *4.25 + (UNITS -100) *5 WHERE UNITS >100;

5 rows updated.
```

4. Compute due date as BILLING_DATE + 15 Days

```
SQL> UPDATE EBILL SET DUE_DATE = BILLING_DATE + 15;

10 rows updated.
```

5. List all the bills generated.

```
SQL> SELECT * FROM EBILL;

RR_NO      CUS_NAME        BILLING_D      UNITS   BILL_AMT DUE_DATE
---------- --------------- --------- ---------- ---------- ---------
EH 1003    ARUN KUMAR      12-MAR-16         98      516.5 27-MAR-16
EH 2005    NAVEEN          14-MAR-16        108        565 29-MAR-16
EH 2007    VARUN           18-FEB-16        157        810 04-MAR-16
EH 3009    DAVID           11-APR-16         77     427.25 26-APR-16
EH 3010    JHON            01-MAR-16         89     478.25 16-MAR-16
EH 3013    AKSHAY          02-FEB-16         68        389 17-FEB-16
EH 1010    CHANDRU         12-MAR-16        108        565 27-MAR-16
EH 1008    GHANAVI         12-MAR-16        132        685 27-MAR-16
EH 2105    DRUVA           12-MAR-16         87     469.75 27-MAR-16
EH 3041    SHREYA          12-MAR-16        127        660 27-MAR-16

10 rows selected.
```

PROGRAM 2:

Create a student database and compute the results.

Create a table for class of students with the following fields.

Field Name	Type
ID_NO	NUMBER(4)
S_NAME	VARCHAR2(15)
SUB1	NUMBER(3)
SUB2	NUMBER(3)
SUB3	NUMBER(3)
SUB4	NUMBER(3)
SUB5	NUMBER(3)
SUB6	NUMBER(3)

1. Add records into the table for 10 students for Student ID, Student Name and marks in 6 subjects using INSERT command.
2. Display the description of the fields in the table using DESC command.
3. Alter the table and calculate TOTAL and PERC_MARKS.
4. Compute the RESULT as "PASSP or "FAIL" by checking if the student has scored more than 35 marks in each subject.
5. List the contents of the table.
6. Retrieve all the records of the table.
7. Retrieve only ID_NO and S_NAME of all the students.
8. List the students who have result as "PASS".
9. List the students who have result as "FAIL".
10. Count the number of students who have passed.
11. Count the number of students who have failed.
12. List the students who have percentage greater than 60.
13. Sort the table according to the order of ID_NO.

Solution:

First we have to create the table **CLASS** using **CREATE TABLE** command.

```
SQL> CREATE TABLE CLASS
  2  (
  3   ID_NO  NUMBER(4),
  4   S_NAME  VARCHAR2(15),
  5   SUB1  NUMBER(3),
  6   SUB2  NUMBER(3),
  7   SUB3  NUMBER(3),
  8   SUB4  NUMBER(3),
  9   SUB5  NUMBER(3),
 10   SUB6  NUMBER(3)
 11  );

Table created.
```

1. Add records into the table for 10 students for Student ID, Student Name and marks in 6 subjects using INSERT command.

SQL> INSERT INTO CLASS VALUES (1401, 'PAWAN', 56, 36, 56, 78, 44, 67);

SQL>INSERT INTO CLASS VALUES (1411, 'RAJESH', 100,100,96,100,100,100);

SQL>INSERT INTO CLASS VALUES (1412, 'KARAN', 60,30,45,45,36,49);

SQL>INSERT INTO CLASS VALUES (1403, 'SACHIN', 56,60,72,57,78,67);

SQL>INSERT INTO CLASS VALUES (1410, 'PRAKASH', 96,99,97,90,78,100);

SQL>INSERT INTO CLASS VALUES (1402, 'POOJA', 30,45,39,20,33,56);

SQL>INSERT INTO CLASS VALUES (1405, 'ASHWINI', 79,65,79,70,89,88);

SQL>INSERT INTO CLASS VALUES (1406, 'PRAJWAL', 100,90,100,89,90,100);

SQL>INSERT INTO CLASS VALUES (1404, 'BALU', 35,30,78,23,44,70);

SQL>INSERT INTO CLASS VALUES (1407, 'ESHWAR', 100,100,100,98,99,100);

2. Display the description of the fields in the table using DESC command.

```
SQL> DESC CLASS;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ID_NO                                              NUMBER(4)
 S_NAME                                             VARCHAR2(15)
 SUB1                                               NUMBER(3)
 SUB2                                               NUMBER(3)
 SUB3                                               NUMBER(3)
 SUB4                                               NUMBER(3)
 SUB5                                               NUMBER(3)
 SUB6                                               NUMBER(3)
```

3. Alter the table and calculate TOTAL and PERC_MARKS.

```
SQL> ALTER TABLE CLASS ADD
  2  (TOTAL NUMBER(3), PERC_MARKS NUMBER(6,2), RESULT VARCHAR2(10));

Table altered.

SQL> UPDATE CLASS SET TOTAL = SUB1+SUB2+SUB3+SUB4+SUB5+SUB6;

10 rows updated.

SQL> UPDATE CLASS SET PERC_MARKS = TOTAL/6;

10 rows updated.
```

4. Compute the RESULT as "PASS" or "FAIL" by checking if the student has scored more than 35 marks in each subject.

```
SQL> UPDATE CLASS SET RESULT = 'PASS'
  2  WHERE (SUB1>=35 AND SUB2>=35 AND SUB3>=35 AND SUB4>=35 AND SUB5>=35 AND SUB6>=35);

7 rows updated.

SQL>
SQL> UPDATE CLASS SET RESULT = 'FAIL'
  2  WHERE (SUB1<35 OR SUB2<35 OR SUB3<35 OR SUB4<35 OR SUB5<35 OR SUB6<35);

3 rows updated.
```

5. List the contents of the table.

6. Retrieve all the records of the table.

```
SQL> SELECT * FROM CLASS;

     ID_NO S_NAME           SUB1       SUB2       SUB3       SUB4       SUB5       SUB6      TOTAL PERC_MARKS RESULT
---------- --------------- ---------- ---------- ---------- ---------- ---------- ---------- ------
      1401 PAWAN                   56         36         56         78         44         67        337      56.17 PASS
      1411 RAJESH                 100        100         96        100        100        100        596      99.33 PASS
      1412 KARAN                   60         30         45         45         36         49        265      44.17 FAIL
      1403 SACHIN                  56         60         72         57         78         67        390         65 PASS
      1410 PRAKASH                 96         99         97         90         78        100        560      93.33 PASS
      1402 POOJA                   30         45         39         20         33         56        223      37.17 FAIL
      1405 ASHWINI                 79         65         79         70         89         88        470      78.33 PASS
      1406 PRAJWAL                100         90        100         89         90        100        569      94.83 PASS
      1404 BALU                    35         30         78         23         44         70        280      46.67 FAIL
      1407 ESHWAR                 100        100        100         98         99        100        597       99.5 PASS

10 rows selected.
```

7. Retrieve only ID_NO and S_NAME of all the students.

```
SQL> SELECT ID_NO, S_NAME FROM CLASS;

     ID_NO S_NAME
---------- ---------------
      1401 PAWAN
      1411 RAJESH
      1412 KARAN
      1403 SACHIN
      1410 PRAKASH
      1402 POOJA
      1405 ASHWINI
      1406 PRAJWAL
      1404 BALU
      1407 ESHWAR

10 rows selected.
```

8. List the students who have result as "PASS".

```
SQL> SELECT * FROM CLASS WHERE RESULT='PASS';

     ID_NO S_NAME           SUB1       SUB2       SUB3       SUB4       SUB5       SUB6      TOTAL PERC_MARKS RESULT
---------- --------------- ---------- ---------- ---------- ---------- ---------- ---------- ------
      1401 PAWAN                   56         36         56         78         44         67        337      56.17 PASS
      1411 RAJESH                 100        100         96        100        100        100        596      99.33 PASS
      1403 SACHIN                  56         60         72         57         78         67        390         65 PASS
      1410 PRAKASH                 96         99         97         90         78        100        560      93.33 PASS
      1405 ASHWINI                 79         65         79         70         89         88        470      78.33 PASS
      1406 PRAJWAL                100         90        100         89         90        100        569      94.83 PASS
      1407 ESHWAR                 100        100        100         98         99        100        597       99.5 PASS

7 rows selected.
```

9. List the students who have result as "FAIL".

```
SQL> SELECT * FROM CLASS WHERE RESULT='FAIL';

     ID_NO S_NAME           SUB1       SUB2       SUB3       SUB4       SUB5       SUB6      TOTAL PERC_MARKS RESULT
---------- --------------- ---------- ---------- ---------- ---------- ---------- ---------- ------
      1412 KARAN                   60         30         45         45         36         49        265      44.17 FAIL
      1402 POOJA                   30         45         39         20         33         56        223      37.17 FAIL
      1404 BALU                    35         30         78         23         44         70        280      46.67 FAIL
```

10. Count the number of students who have passed.

```
SQL> SELECT COUNT(*) FROM CLASS WHERE RESULT = 'PASS';

  COUNT(*)
----------
         7
```

11. Count the number of students who have failed.

```
SQL> SELECT COUNT(*) FROM CLASS WHERE RESULT='FAIL';

  COUNT(*)
----------
         3
```

12. List the students who have percentage greater than 60.

```
SQL> SELECT * FROM CLASS WHERE PERC_MARKS>60;

     ID_NO S_NAME               SUB1       SUB2       SUB3       SUB4       SUB5       SUB6      TOTAL PERC_MARKS RESULT
---------- --------------- ---------- ---------- ---------- ---------- ---------- ---------- ------- ---------- -------
      1411 RAJESH                 100        100         96        100        100        100        596      99.33 PASS
      1403 SACHIN                  56         60         72         57         78         67        390         65 PASS
      1410 PRAKASH                 96         99         97         90         78        100        560      93.33 PASS
      1405 ASHWINI                 79         65         79         70         89         88        470      78.33 PASS
      1406 PRAJWAL                100         90        100         89         90        100        569      94.83 PASS
      1407 ESHWAR                 100        100        100         98         99        100        597       99.5 PASS

6 rows selected.
```

13. Sort the table according to the order of ID_NO.

```
SQL> SELECT * FROM CLASS ORDER BY ID_NO;

     ID_NO S_NAME               SUB1       SUB2       SUB3       SUB4       SUB5       SUB6      TOTAL PERC_MARKS RESULT
---------- --------------- ---------- ---------- ---------- ---------- ---------- ---------- ------- ---------- -------
      1401 PAWAN                   56         36         56         78         44         67        337      56.17 PASS
      1402 POOJA                   30         45         39         20         33         56        223      37.17 FAIL
      1403 SACHIN                  56         60         72         57         78         67        390         65 PASS
      1404 BALU                    35         30         78         23         44         70        280      46.67 FAIL
      1405 ASHWINI                 79         65         79         70         89         88        470      78.33 PASS
      1406 PRAJWAL                100         90        100         89         90        100        569      94.83 PASS
      1407 ESHWAR                 100        100        100         98         99        100        597       99.5 PASS
      1410 PRAKASH                 96         99         97         90         78        100        560      93.33 PASS
      1411 RAJESH                 100        100         96        100        100        100        596      99.33 PASS
      1412 KARAN                   60         30         45         45         36         49        265      44.17 FAIL

10 rows selected.
```

PROGRAM 3:

Generate the Employee details and compute the salary based on the department.
Create the following table EMPLOYEE.

Field Name	Type
EMP_ID	NUMBER(4)
DEPT_ID	NUMBER(2)
EMP_NAME	VARCHAR2(10)
EMP_SALARY	NUMBER(5)

Create another table DEPARTMENT.

Field Name	Type
DEPT_ID	NUMBER(2)
DEPT_NAME	VARCHAR2(10)
SUPERVISOR	VARCHAR2(10)

Assume the DEPARTMENT names as Purchase (Id-01), Accounts (Id-02), Sales (Id-03), and Apprentice (Id-04)

Enter 10 rows of data for table EMPLOYEE and 4 rows of data for DEPARTMENT table.

Write the SQL statements for the following:

1. Find the names of all employees who work for the Accounts department.
2. How many employees work for Accounts department?
3. What are the Minimum, Maximum and Average salary of employees working for Accounts department?
4. List the employees working for particular supervisor.
5. Retrieve the department names for each department where only one employee works.
6. Increase the salary of all employees in the sales department by 15%.
7. Add a new Colum to the table EMPLOYEE called BONUS NUMBER (5) and compute 5% of the salary to the said field.
8. Delete all the rows for the employee in the Apprentice department.

Solution:

First we have to create two tables, **EMPLOYEE** and **DEAPRTMENT**.

```
SQL> CREATE TABLE EMPLOYEE
  2  (
  3   EMP_ID  NUMBER(4),
  4   DEPT_ID  NUMBER(2),
  5   EMP_NAME VARCHAR2(10),
  6   EMP_SALARY NUMBER(5)
  7  );

Table created.
```

```
SQL> CREATE TABLE DEPARTMENT
  2  (
  3   DEPT_ID  NUMBER(2),
  4   DEPT_NAME VARCHAR2(10),
  5   SUPERVISOR VARCHAR2(10)
  6  );

Table created.
```

To Insert 10 records into the table EMPLOYEE using INSERT INTO command.

SQL> INSERT INTO EMPLOYEE VALUES (101, 01, 'ARUN', 15000);

SQL> INSERT INTO EMPLOYEE VALUES (104, 02, 'MOHAN', 20000);

SQL> INSERT INTO EMPLOYEE VALUES (105, 03, 'SUMAN', 22000);

```
SQL> INSERT INTO EMPLOYEE VALUES (106, 02, 'SUSHMA', 18000);
SQL> INSERT INTO EMPLOYEE VALUES (109, 01, 'KUSHI', 22300);
SQL> INSERT INTO EMPLOYEE VALUES (110, 02, 'VIDHYA', 15000);
SQL> INSERT INTO EMPLOYEE VALUES (102, 02, 'KAVYA', 21300);
SQL> INSERT INTO EMPLOYEE VALUES (107, 03, 'AKASH', 18200);
SQL> INSERT INTO EMPLOYEE VALUES (108, 04, 'NAWAZ', 12000);
SQL> INSERT INTO EMPLOYEE VALUES (103, 02, 'DEEPAK', 24000);
```

To insert 4 records into the table DEAPRTMENT using the INSERT INTO command.

```
SQL>INSERT INTO DEPARTMENT VALUES (01, 'PURCHASE', 'KRISHNA');
SQL>INSERT INTO DEPARTMENT VALUES (02, 'ACCOUNTS', 'TANVEER');
SQL>INSERT INTO DEPARTMENT VALUES (03, 'SALES', 'SURYA');
SQL>INSERT INTO DEPARTMENT VALUES (04, 'APPRENTICE', 'HARSHA');
```

1. **Find the names of all employees who work for the Accounts department.**

```
SQL> SELECT * FROM EMPLOYEE WHERE DEPT_ID=
  2  (SELECT DEPT_ID FROM DEPARTMENT
  3  WHERE DEPT_NAME='ACCOUNTS');

    EMP_ID    DEPT_ID EMP_NAME   EMP_SALARY
---------- ---------- ---------- ----------
       104          2 MOHAN           20000
       106          2 SUSHMA          18000
       110          2 VIDHYA          15000
       102          2 KAVYA           21300
       103          2 DEEPAK          24000
```

2. **How many employees work for Accounts department?**

```
SQL> SELECT COUNT(*) FROM EMPLOYEE WHERE DEPT_ID =
  2  (SELECT DEPT_ID FROM DEPARTMENT
  3  WHERE DEPT_NAME='ACCOUNTS');

  COUNT(*)
----------
         5
```

3. **What are the Minimum, Maximum and Average salary of employees working for Accounts department?**

```
SQL> SELECT MIN(EMP_SALARY),
  2         MAX(EMP_SALARY),
  3         AVG(EMP_SALARY)
  4  FROM EMPLOYEE WHERE DEPT_ID =
  5  (SELECT DEPT_ID FROM DEPARTMENT
  6  WHERE DEPT_NAME='ACCOUNTS');

MIN(EMP_SALARY) MAX(EMP_SALARY) AVG(EMP_SALARY)
--------------- --------------- ---------------
          15000           24000           19660
```

4. List the employees working for particular supervisor.

```
SQL> SELECT * FROM EMPLOYEE WHERE DEPT_ID =
  2  (SELECT DEPT_ID FROM DEPARTMENT
  3  WHERE SUPERVISOR='SURYA');

    EMP_ID    DEPT_ID EMP_NAME   EMP_SALARY
---------- ---------- ---------- ----------
       105          3 SUMAN           22000
       107          3 AKASH           18200
```

5. Retrieve the department names for each department where only one employee works.

```
SQL> SELECT DEPT_NAME FROM DEPARTMENT
  2  WHERE DEPT_ID IN (SELECT DEPT_ID FROM EMPLOYEE
  3  GROUP BY DEPT_ID HAVING COUNT(*)=1);

DEPT_NAME
----------
APPRENTICE
```

6. Increase the salary of all employees in the sales department by 15%.

```
SQL> UPDATE  EMPLOYEE
  2  SET  EMP_SALARY = EMP_SALARY + 15 * EMP_SALARY/100
  3  WHERE DEPT_ID = (SELECT DEPT_ID FROM DEPARTMENT
  4        WHERE DEPT_NAME='SALES');

2 rows updated.
```

7. Add a new Colum to the table EMPLOYEE called BONUS NUMBER (5) and compute 5% of the salary to the said field.

```
SQL> ALTER TABLE EMPLOYEE ADD(BONUS NUMBER(5));

Table altered.

SQL>
SQL> UPDATE EMPLOYEE
  2  SET BONUS = 5 * EMP_SALARY/100;

10 rows updated.

SQL> SELECT * FROM EMPLOYEE;

    EMP_ID    DEPT_ID EMP_NAME   EMP_SALARY      BONUS
---------- ---------- ---------- ---------- ----------
       101          1 ARUN            15000        750
       104          2 MOHAN           20000       1000
       105          3 SUMAN           25300       1265
       106          2 SUSHMA          18000        900
       109          1 KUSHI           22300       1115
       110          2 VIDHYA          15000        750
       102          2 KAVYA           21300       1065
       107          3 AKASH           20930       1047
       108          4 NAWAZ           12000        600
       103          2 DEEPAK          24000       1200

10 rows selected.
```

8. Delete all the rows for the employee in the Apprentice department.

```
SQL> DELETE FROM EMPLOYEE
  2  WHERE DEPT_ID = (SELECT DEPT_ID FROM DEPARTMENT
  3        WHERE DEPT_NAME='APPRENTICE');

1 row deleted.
```

SECTION - C

ADVANCED HTML

PROGRAM 1:

Write a HTML program to create a CLASS Time Table.

```
<HTML>
<HEAD>
        <TITLE> CLASS TIME TABLE </TITLE>
</HEAD>

<BODY TEXT=DARKBLUE COLOR=WHITE>
<CENTER> <H3> M D R PU SCIENCE COLLEGE </H3>
<CENTER> <H4> TIME TABLE 2016-17 </H4>

<TABLE BORDER=10 BORDERCOLOR=RED BGCOLOR=CORNSILK CELLSPACING=2
CELLPADDING=15>
<CAPTION> <B> II PUC PCMCs </B> <CAPTION>

<TR BGCOLOR=PEACHPUFF>
        <TD ROWSPAN=2 ALIGN=CENTER> <B> DAY </B> </TD>
        <TD COLSPAN=8 ALIGN=CENTER> <B> TIMINGS </B></TD>
</TR>

<TR BGCOLOR=RED>
        <TH> 9.20 - 10.20 </TH>
        <TH> 10.20 - 11.20 </TH>
        <TH> 11.20 - 11.30 </TH>
        <TH> 11.30 - 12.30 </TH>
        <TH> 12.30 - 1.30 </TH>
        <TH> 1.30 - 2.30 </TH>
        <TH> 2.30 - 3.15 </TH>
        <TH> 3.15 - 4.00 </TH>
</TR>
<TR>
        <TD> MONDAY </TD>
        <TD> MATHS </TD>
        <TD> PHYSICS </TD>
```

```
        <TD ROWSPAN=6 ALIGN="CENTER">SHORT BREAK</TD>
        <TD> CHEMISTRY </TD>
        <TD> COMP SCI </TD>
        <TD ROWSPAN=6 ALIGN=CENTER>LUNCH BREAK</TD>
        <TD COLSPAN=2ALIGN=CENTER><……COMP SCI LAB…..> </TD>
</TR>
<TR>
        <TD>TUESDAY</TD>
        <TD> PHYSICS </TD>
        <TD> MATHS </TD>
        <TD> CHEMISTRY </TD>
        <TD> ENGLISH </TD>
        <TD COLSPAN=2 ALIGN=CENTER><……PHYSICS LAB……></TD>
</TR>
<TR>
        <TD> WEDNESDAY </TD>
        <TD> COMP SCI </TD>
        <TD> PHYSICS </TD>
        <TD> MATHS </TD>
        <TD> KANNADA </TD>
        <TD COLSPAN=2 ALIGN=CENTER><……CHEMISTRY LAB….></TD>
</TR>
<TR>
        <TD> THRUSDAY </TD>
        <TD> MATHS </TD>
        <TD> KANNADA </TD>
        <TD> PHYSICS </TD>
        <TD> ENGLISH </TD>
        <TD COLSPAN=2 ALIGN=CENTER><……COMP SCI LAB…..> </TD>
</TR>
        <TR>
        <TD>FRIDAY </TD>
        <TD>ENGLISH </TD>
        <TD>MATHS </TD>
        <TD>PHYSICS </TD>
```

```
        <TD>COMP SCI </TD>
        <TD>CHEMISTRY </TD>
        <TD>KANNADA </TD>
</TR>
<TR>
        <TD> SATURDAY </TD>
        <TD> MATHS </TD>
        <TD> ENGLISH </TD>
        <TD> CHEMISTRY </TD>
        <TD> COMP SCI </TD>
        <TD COLSPAN=2 ALIGN=CENTER><……SPECIAL CLASS…..> </TD>
</TR>
</TABLE>
</CENTER>
</BODY>
</HTML>
```

OUTPUT:

M D R PU SCIENCE COLLEGE

TIME TABLE 2016-17

II PUC PCMCs

DAY	TIMINGS							
	9.20 - 10.20	10.20 - 11.20	11.20 - 11.30	11.30 - 12.30	12.30 - 1.30	1.30 - 2.30	2.30 - 3.15	3.15 - 4.00
MONDAY	MATHS	PHYSICS	SHORT BREAK	CHEMISTRY	COMP SCI	LUNCH BREAK	<……COMP SCI LAB…..>	
TUESDAY	PHYSICS	MATHS		CHEMISTRY	ENGLISH		<……PHYSICS LAB……>	
WEDNESDAY	COMP SCI	PHYSICS		MATHS	KANNADA		<……CHEMISTRY LAB….>	
THRUSDAY	MATHS	KANNADA		PHYSICS	ENGLISH		<……COMP SCI LAB…..>	
FRIDAY	ENGLISH	MATHS		PHYSICS	COMP SCI		CHEMISTRY	KANNADA
SATURDAY	MATHS	ENGLISH		CHEMISTRY	COMP SCI		<……SPECIAL CLASS…..>	

PROGRAM 2:

Create an HTML program with Table and Form.

```
<HTML>
<HEAD>
        <TITLE> ONLINE APPLICATION </TITLE>
</HEAD>

<BODY>
<FORM NAME="APPFORMPUC" METHOD="POST" ACTION="IPUC_SEND.PHP>
<H3 ALIGN=CENTER> FIRST PUC APPLICATION FORM </H3>
<TABLE CELLSPACING=5 CELLPADDING=5% ALIGN=CENTER>
<TR>
        <TD ALIGN=LEFT>STUDENT NAME: </TD>
        <TD><INPUT TYPE="TEXT" NAME="STUNAME"></TD>
</TR>
<TR>
        <TD ALIGN=LEFT>FATHER NAME: </TD>
        <TD><INPUT TYPE="TEXT" NAME="FATNAME"></TD>
</TR>
<TR>
        <TD ALIGN=LEFT>FATHER OCCUPATION: </TD>
        <TD><INPUT TYPE="TEXT" NAME="FATOCC"></TD>
</TR>
<TR>
        <TD ALIGN=LEFT>DATE OF BIRTH: </TD>
        <TD><INPUT TYPE="TEXT" NAME="DOB"></TD>
</TR>
<TR>
        <TD ALIGN=LEFT>CONTACT NUMBER: </TD>
        <TD><INPUT TYPE="TEXT" NAME="CONTACT"></TD>
</TR>
<TR>
        <TD ALIGN=LEFT> EMAIL ID: </TD>
        <TD><INPUT TYPE="TEXT" NAME="EMAIL"></TD>
</TR>
<TR>
        <TD ALIGN=LEFT>UPLOAD PHOTO: </TD>
        <TD><INPUT TYPE=FILE NAME="PHOTO"></TD>
</TR>
<TR>
        <TD ALIGN=LEFT>GENDER: </TD>
        <TD><INPUT TYPE=RADIO NAME=GEN VALUE="M">MALE
        <INPUT TYPE=RADIO NAME=GEN VALUE="F">FEMALE</TD>
</TR>
```

```
<TR>
        <TD ALGIN=LEFT> CATEGORY:</TD>
        <TD ALGIN=LEFT><INPUT TYPE=”TEXT” NAME=”CATEGORY”>
        <SELECT NAME=”DROPDOWN” >
                <OPTION VALUE=1>GM</OPTION>
                <OPTION VALUE=2>SC</OPTION>
                <OPTION VALUE=3>ST</OPTION>
                <OPTION VALUE=4>C1</OPTION>
                <OPTION VALUE=5>2A</OPTION>
                <OPTION VALUE=6>2B</OPTION>
                <OPTION VALUE=7>3A</OPTION>
                <OPTION VALUE=8>3B</OPTION>
        </SELECT>
        </TD>
</TR>
<TR>
        <TD ALIGN=LEFT>Indicate the Board PASSED: </TD>
        <TD ALGIN=LEFT><INPUT TYPE=”TEXT” NAME=”QUALIFICATION” >
        <SELECT NAME=”DROPDOWN” SIZE=4 ID=QUALI>
                <OPTION VALUE=1>SSLC</OPTION>
                <OPTION VALUE=2>CBSE</OPTION>
                <OPTION VALUE=3>ICSE</OPTION>
                <OPTION VALUE=4>OTHER STATE</OPTION>
        </SELECT>
        </TD>
</TR>
<TR>
        <TD ALGIN=LEFT> STUDENT ADDRESS :</TD>
        <TD> <TEXTAREA ROWS=2 COLS=15 NAME=ADD></TEXTAREA>
                <P> Enter the Contact Address with Pin Code </P>
        </TD>
</TR>
<TR>
        <TD ALGIN=LEFT>SUBJECT CHOOSEN: </TD>
        <TD ALGIN=LEFT>
                <INPUT TYPE=CHECKBOX NAME=LANG1 >KANNADA
                <INPUT TYPE=CHECKBOX NAME=LANG2 >ENGLISH
                <INPUT TYPE=CHECKBOX NAME=SUB1 >PHYSICS
                <INPUT TYPE=CHECKBOX NAME=SUB2 >CHEMISTRY
                <INPUT TYPE=CHECKBOX NAME=SUB3 >MATHS
                <INPUT TYPE=CHECKBOX NAME=SUB4 >BIOLOGY
                <INPUT TYPE=CHECKBOX NAME=SUB5 >COMP SCI
                <INPUT TYPE=CHECKBOX NAME=SUB56>ELECTRONICS
        </TD>
</TR>
```

```
<TR>
        <TD><INPUT TYPE="SUBMIT" VALUE="SUBMIT THE FORM"> </TD>
        <TD><INPUT TYPE="RESET" VALUE="RESET THE FORM"></TD>
</TR>
</TABLE>
<FORM>
</BODY>
</HTML>
```

OUTPUT: