Project Title: A Statistical Approach to Investing—Risk vs. Reward

Project Idea: You are on your own and you have just started your first job. In planning your personal budget, you decide that you want to start immediately investing in your financial future. You and a few of your peers with the same investment tendencies decide to research stocks in which you should invest. You will be presenting information to you perspective financial planner so they can help you start an investment program.

Entry Event: The student will complete a risk assessment determining what type of investor he/she would be (aggressive, moderate, or conservative). http://preparewithpru.com/shared/content/quiz-what-kind-of-investor-am-i.php

West Virginia College- and Career Readiness Standards:

Objectives Directly Taught or Learned Through Inquiry/Discovery	Evidence of Student Mastery of Content
M.1HS.33 Interpret differences in shape, center and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). Instructional Note: In grades 6 – 8, students describe center and spread in a data distribution. Here they choose a summary statistic appropriate to the characteristics of the data distribution, such as the shape of the distribution or the existence of extreme data points.	At the end of the 30-45 days, the calculations for these measures of center and spread will be in the *Excel Documents* and discussed in the Individual Stock Analysis Report and then used in order to analyze their choices of types of stocks in their final Investment Plan Portfolio and Presentation, Final Presentation Rubric.
M.1HS.35 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear and exponential models. b. Informally assess the fit of a function by plotting and analyzing residuals. (Focus should be on situations for which linear models are appropriate.) c. Fit a linear function for scatter plots that suggest a linear association. Instructional Note: Students take a more sophisticated look at using a linear function to model the relationship between two numerical variables. In addition to fitting a line to data, students assess how well the model fits by analyzing residuals.	The students will create a scatter plot in the *Excel Document* which also keeps track of and performs the statistical calculations for the data for the five stocks that are chosen by the group. The linear function (a.k.a. line of best fit, trend line) will be achieved by performing a linear regression analysis in Excel.

M.1HS.36 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. Instructional Note: Build on students' work with linear relationships in eighth grade and introduce the correlation coefficient. The focus here is on the computation and interpretation of the correlation coefficient as a measure of how well the data fit the relationship.	Students use the scatter plot and line of best fit in each *Excel Document* that was created to find the r-square and therefore the correlation coefficient, r, by taking the square root of r-square value of the stocks' rates of change. The interpretation of the correlation coefficient will help the students to determine if the data is suggesting that there is a linear function that suggests they may use the trend line to help them decide their future decisions on their stocks.
M.1HS.37 Compute (using technology) and interpret the correlation coefficient of a linear fit. Instructional Note: Build on students' work with linear relationships in eighth grade and introduce the correlation coefficient. The focus here is on the computation and interpretation of the correlation coefficient as a measure of how well the data fit the relationship.	Students use the scatter plot and line of best fit in each *Excel Document* that was created to find the r-square and therefore the correlation coefficient, r, by taking the square root of r-square value of the stocks' rates of change.
M.1HS.38 Distinguish between correlation and causation. Instructional Note: The important distinction between a statistical relationship and a cause-and-effect relationship arises here.	Students use the Excel Documents to help make decisions about their stocks that they will discuss in their final Investment Plan Portfolio and Presentation, Final Presentation Rubric. Students should mention that the decisions are not due to a direct cause-and-effect relationship, but rather that there seems to be a relationship (if the correlation coefficient is strong enough) to suggest the use of the model for predictive purposes.

Performance Objectives:

Know

Basic terminology of the stock market
Excel is a powerful mathematical tool for calculations and graphs
The meaning of linear regression analysis
The meaning of correlation coefficient analysis
What a standard deviation, beta and r^2 mean in relationship to the volatility of a stock
The differences between conservative and aggressive stocks
How to predict outcomes for stocks future values using the regression model being weary of extrapolation

Do

Research the characteristics of a stock that explain its historical behavior and volatility
Take a risk analysis quiz in order to determine the type of investor
Create tables and graphs in Excel of Stocks Rates of Return in relationship to the S&P Rates of Return
Perform linear regression analysis finding the line of best fit and the correlation coefficient
Make predictions of a stocks future value based off of historical performance and the line of regression being cognoscente of extrapolation and the unpredictability of stocks
Choose five stocks in which to use in the final portfolio
Create a PowerPoint presentation for local financial advisors, bankers, and CPAs of the group's choice of stocks as it pertains to the predetermined level of risk desired

Driving Question:

How should a person use statistics to help determine which stocks in which to invest?

Assessment Plan:

Assessment Plan Notes

Major Group Products	*Excel Documents* Group Task Chart Individual Stock Analysis Report Final Presentation Rubric Group Agreement Collaboration Rubric
Major Individual Projects	Individual Daily Activity Log Self Evaluation

Assessment and Reflection:

Rubric(s) I will use: (Check all that apply.)	Collaboration Collaboration Rubric	x	Written Communication Final Presentation Rubric	x
	Critical Thinking & Problem Solving		Content Knowledge Final Presentation Rubric includes written communication and content knowledge	x
	Oral Communication		Other	
Other classroom assessments for learning: (Check all that apply)	Quizzes/ tests		Practice presentations	
	Self-evaluation Self Evaluation	x	Notes	
	Peer evaluation Peer Evaluation	x	Checklists/observations	
	Online tests and exams		Concept maps	
Reflections: (Check all that apply)	Survey		Focus Group	
	Discussion		Task Management Chart Group Task Chart	x
	Journal Writing/ Learning Log Individual Daily Activity Log Individual Stock Analysis Report	x	Other Project Evaluation	x

Map the Project:

The timeframe of the project is referenced throughout Manage the Process.

Product:

Group Task Chart

Excel Documents

Individual Stock Analysis Report

Investment Plan Portfolio and Presentation

Knowledge and Skills Needed	Already Have Learned	Taught Before the Project	Taught During the Project
1. Define basic stock terminology		X	
2. Calculate line of best fit, mean, standard deviation and correlation coefficient by hand.	X		
3. Spreadsheet basics	X	X	
4. Research stock market ticker values over time			X
5. Calculating Rates of Return in Excel		X	X
6. Calculating Mean, Standard Deviation in Excel		X	X
7. Use advanced graphing and trend line features of Excel			X
8. Create a PowerPoint	X		
9. Using data and statistics found to make decisions			X

Resources:

School-based Individuals:

Investor Education Specialists at State Auditor's Office
Education Specialist at WV State Treasurer's Office
Technology Integration Specialist
Investment Club Advisor (if applicable)
Business teachers
DECA or FBLA sponsors

Technology:

Computer lab
LCD projector for PowerPoints
Internet access

Community:

Bankers
Insurance Agents
Financial Planners
CPAs

Materials:

Computers
PowerPoint software
Excel software
LCD
Copies of rubrics and worksheets

Websites:

Websites to Assist in Your Learning

Manage the Process:

Manage the Process attachment

Project Evaluation

Print and give Self Evaluation and Collaboration Rubric to your students upon the completion of the project. These reflections can be used directly or indirectly for assessment of students completing their roles in the project.

The Project Evaluation is to be completed by the individual and then the groups will discuss and turn in a final evaluation. You may wish to compile and share the results to everyone in a class discussion.

Key Words: Linear Regression, Standard Deviation, Correlation Coefficient

Manage the Process

Note to Instructor: This is an attempt to incorporate a working knowledge of the use of statistical calculations in a real-world setting that would encourage students to use their skills to benefit themselves in the stock market, which may and should be a viable investment option for their personal financial future.

A Note about the Standards: This topic is going to be an intense statistical study of stocks. It is important that students be well versed on statistical calculations mentioned or implied in the Standards above (scatter plots, linear regression which is implied by M.1HS.36, M.1HS.37 and M.1HS.38, correlation coefficient, mean and standard deviation). It is also important to realize that measures of center and spread were introduced in grades 6 through 8. The reason this PBL is in grade 9 is because it has the students go beyond the mechanics of finding the mean and standard deviation to help him/her to assess the statistical elements of their chosen stocks. As a matter of fact, the Descriptive Statistics standard in Math I suggests at the beginning of each of the clusters that students should be focusing more on using statistics to start making decisions. The first cluster states: "In grades 6-8, students described center and spread in a data distribution. Here they choose a summary statistic appropriate to the characteristics of the data distribution, such as the shape of the distribution or the existence of extreme data points." I also want to mention that the entire Standard is listed but not each of the elements are addressed in this PBL such as residuals, slope, and the intercept.

Before the Project: It is also very important that students understand and already know how to use Excel in order to perform calculations. You may want to take some time before starting the actual project reminding students how to perform the calculations in Excel. It is also important to note that you can find the trend line on the scatter plots created in Excel by right clicking on one of the data points and following the instructions to add the trend line. One of the commands asks you if you want to include the r-square value. By selecting this value, you will be able to find the correlation coefficient, r, by simply taking the square root of r-square. I have included an example using Disney stock values, Excel Documents (Disney Example for teachers) and Excel Documents Showing Formulas (Disney Example for teachers) that has notes for you about using the software and inserting the data. The final presentation is a PowerPoint therefore, you may need to do a brief survey of your class to determine the level of knowledge they have of proper use of this software.
Put together the project packets to hand out to the students. It will contain all the documents, deadlines, and rubrics that they will need in order to create their portfolio of materials. Project packets should include: Basic Investing Terminology, Websites to Assist in Your Learning, Individual Daily Activity Log, Group Agreement, example of Group Task Chart to create an Excel document, Disney example for students to use while creating their own Excel Document (optional to meet individual student needs), Disney Formulas example for students to use while creating their own Excel Document (optional to meet individual student needs), instructions for the contents of the Stock Chart Excel document, Investment Plan Portfolio and Presentation, Individual Stock Analysis Report, Collaboration Rubric, and Final Presentation Rubric.

Phase 1: The teacher will explain the purpose of the project and hand out the project packets. You will want to start this PBL by having a class discussion on the stock market and the volatility of stocks. You can start this discussion by yourself or you can get the help from a local expert (financial advisor, CPA, etc.). You want to be sure to contact this expert well in advance in order to set the time that is best suited for both of your schedules. Most students will likely have a limited knowledge of the technicalities of stocks, which you will be exploring in the project. I have included a Basic Investing Terminology and Websites to Assist in Your Learning that should be addressed in this discussion. You may also want to have this worksheet be an individual assignment. It could take a day or two of Internet research to locate

and explain comprehensive definitions and examples of these words. During the discussion of the terminology, you may want to have projected Internet access so that you can delve into the elements of the stock's ticker information at a site such as www.finance.yahoo.com or any mentioned in the Resources section of the Websites to Assist in Your Learning. You will also want to mention to the students that volatility is unpredictable in stocks. This means that even though you are going to perform statistical calculations on each stock and make decisions using your statistics, this will not guarantee the assumed outcome. There are really just too many uncontrollable variables that affect the stocks' volatility. If you are uncomfortable with any of these elements of the stock market, this would be a perfect opportunity for you to have a state or local expert (mentioned in Resources) to assist with the aspect.

The students will also need to do the Entry Event (Risk Assessment Activity that determines the type of investor one would tend to be.) This can be found at http://preparewithpru.com/shared/content/quiz-what-kind-of-investor-am-i.php. Have a discussion of this risk assessment once the students have completed the activity. Now you will want to take this data from the risk assessment in order to create groups of size 3 or 4. You will want to determine the groups that would work best for your class dynamic, learning styles and size. This is definitely up to your discretion.

This is the day that you want the students to start their Individual Daily Activity Log**.**

Phase 2: Now the students will want to create a working Group Agreement. Then the students will begin by researching the types of stocks that fit their investing risk assessment (http://www.investopedia.com/articles/basics/03/050203.asp, http://www.nasdaq.com/services/riskMetrics.stm). They will want to focus on the volatility of the stocks. This will likely take some time until the students are confident in their five stock choice selections because they will be tracking it and they will not switch within the constraints of this project. It is also worth noting that the five stocks that are supposed to be used to create the portfolios is just a suggestion to see the differences between the different stocks. Feel free to change the number of stocks that groups select for their portfolio to fit what you think will work best for your class dynamic.

Phase 3: The student groups will track the progress of their five stocks over the course of the next 30-45 days on the excel spreadsheet titled Group Task Chart. They are going to be recording the daily closing stock value for each stock and the S&P. This data will then be imported into the Excel Documents for each of the five stocks. You want the students to divvy up the data collection by week being sure that they always have a back-up in case someone is absent. Once you have a few days worth of data, you will want to have the students create the Excel Document in order to perform the mathematical calculations so you can compare the statistical evidence with the daily volatility markers on the stocks' pages.

Note to instructor: I am including an example for you to see how the Excel Document would look using 66 days of data that I collected and calculated on Disney's daily rates of change (This is mostly as an explanation for you so you may not want to give these to your students). I am including the Disney example and Disney Formulas example. I am including the examples so that you can see what the students will be calculating since it is a very rich mathematical calculations process. You may need to take a day or two here in order to explain to the students what they are calculating. They need to remember that they are to allow Excel to do all the calculation.

Additionally, you may also want to schedule a discussion time between the members once a week so they can discuss the stock's progress and data trends. You may want to do this every Monday for 10-15 minutes as a class warm-up.

Phase 4: When the final days are approaching (of the 30-45 days) you will want to allow 3-6 days for the students to work on their PowerPoint presentations and portfolio (Investment Plan Portfolio and Presentation, Individual Stock Analysis Report, and Final Presentation Rubric) which will be presented to a panel of their peers (class), as well as any combination of a few local experts, another staff or faculty member, an administrator, and yourself. You will want to set the date of presentations at the very beginning so the students can be working towards this final presentation and so that you can prepare the panelist for the date and what to expect.

Phase 5: The end of the project should be completed in 3-6 days. This will be the presentation to the panelists. The students need to be prepared to talk about their stock risk style and choices and the results and predictions that they would make about their brief analysis of these four stocks. They need to be prepared to defend their choices and calculations. Other groups are given Peer Evaluation to evaluate each group's presentation. The panelists are more than welcome to ask questions and to give further input on suggestions for the students' personal finance future plans. Each panelist will also complete the Project Evaluation in order to give feedback to the group and the teacher. The teacher can use these for help with assessing on the Final Presentation Rubric.

Assessment Plan Notes

Artifacts/Individual Assessment/Group Assessment/Reflection Pieces:

(KNLA) Know/Need to Know Chart – Students create four columns and record what they **K**now, **N**eed to know, how they will **L**earn more, and how they will **A**pply what they learn as they work on the project

Excel Documents - There are examples of an excel documents and a formula version so you can lead the student with their documentation of their stocks daily % changes and deviations/standard deviations. You can either give them a formula sheet of how to create these cells in Excel or you can make that a part of their assessment.

Individual Daily Activity Log – Students will keep track separately of their daily activities, learning, reflections, and progress. This will be looked at by the teacher throughout the project and will be submitted at the completion of the project. Have the students simply create a journal formatted log where they detail and reflect on the days that they work on the project over the 30-45 day span. There is also a rubric attached that may be used.

Teacher-created Quizzes - The mathematical calculations of linear regression, r, mean, variance and standard deviation were taught prior to the project and an individual assessment could be done prior to the beginning of this project.

Group Agreement- The students create a working agreement of what the commitments they will make to be sure the project is successfully completed. Have the students create their own from scratch including possible items such as work effort, goals, responsibilities, attendance, etc.

Individual Stock Analysis Report - The group will keep a daily log/notebook of this worksheet to keep their raw data.

Group Task Chart– Groups will create and keep track of the tasks that are to be completed for the project and it will be submitted upon teacher's request and with the final project. This will also contain who has to check the stocks on some type of rotational basis between the group members.

Investment Plan Portfolio and Presentation -
Portfolio- the complete list of the *Excel documents* (tables and graphs), task list, Individual Stock Analysis Report, Group Agreement

Investment Plan Presentation- student will use a PowerPoint based off of Individual Stock Analysis Report for each of the stocks in their portfolio justifying their stock choices to a board of investment experts. This assignment will be scored by means of the Final Presentation Rubric.

Peer Evaluation - students evaluate other groups' presentations

Collaboration Rubric - Students evaluate their abilities to work together as a group.

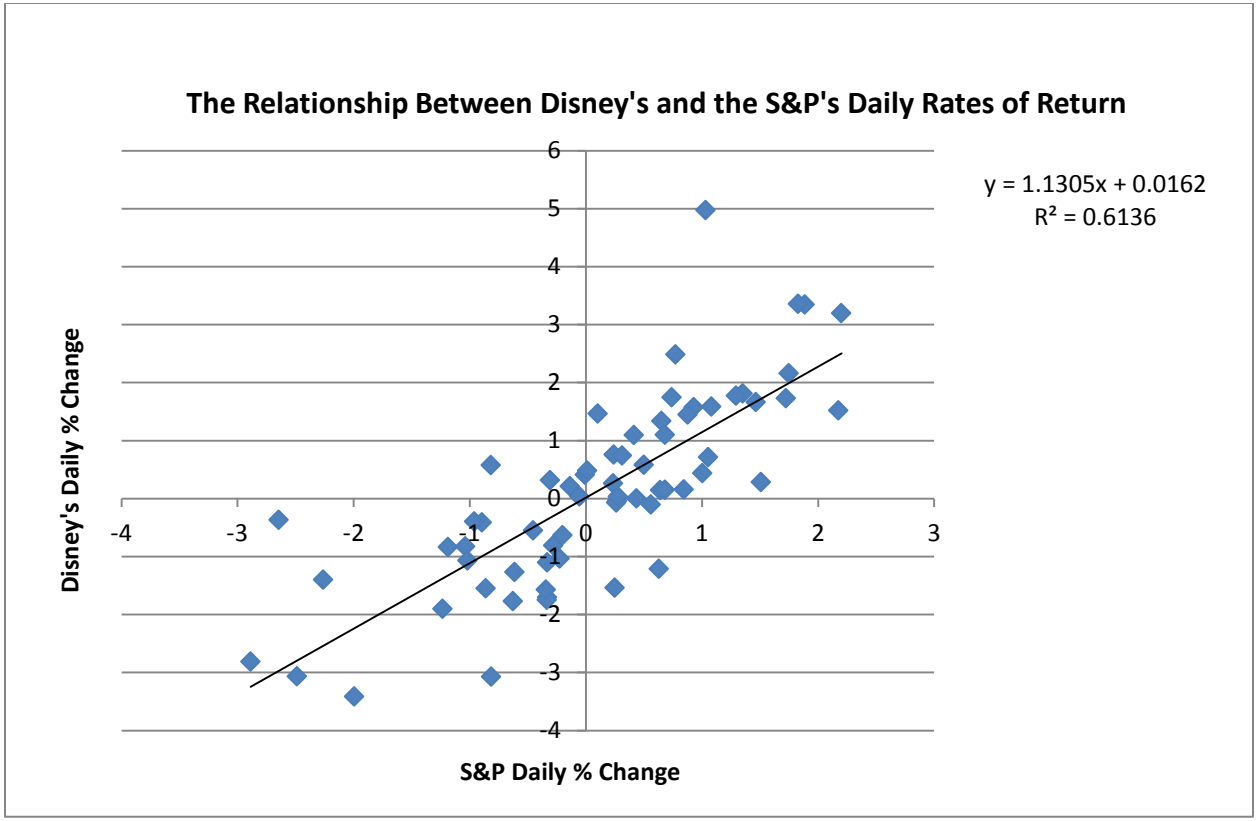
Excel Documents (Disney Example for teachers)

	Excel Document		(Disney Example)							
	Date	Disney Close	Disney % Change	S&P Close	S&P % Return (x)	Disney % Change (y)		Deviations	Dev from Mean	(Dev from mean)^2
1	11/12/2009	29.05	-0.82616179	1,087.24	**-1.04**	**-0.82616179**		0.21	0.18	0.0322073425439116
2	11/11/2009	29.29	0.580402868	1,098.51	**0.50**	**0.580402868**		0.08	0.05	0.0023795709727403
3	11/10/2009	29.12	0.412087912	1,093.01	**-0.01**	**0.412087912**		0.42	0.39	0.1501937739253420
4	11/9/2009	29	1.517241379	1,093.08	**2.18**	**1.517241379**		-0.66	-0.69	0.4750056424231290
5	11/6/2009	28.56	-1.540616246	1,069.30	**0.25**	**-1.540616246**		-1.79	-1.82	3.3169739255805300
6	11/5/2009	29	3.344827586	1,066.63	**1.89**	**3.344827586**		1.46	1.43	2.0352770994610900
7	11/4/2009	28.03	1.462718516	1,046.50	**0.10**	**1.462718516**		1.36	1.33	1.7625694819419300
8	11/3/2009	27.62	0.76031861	1,045.41	**0.24**	**0.76031861**		0.52	0.49	0.2375241244997400
9	11/2/2009	27.41	0.145932142	1,042.88	**0.64**	**0.145932142**		-0.50	-0.53	0.2772069651202240
10	10/30/2009	27.37	-2.813299233	1,036.19	**-2.89**	**-2.813299233**		0.07	0.04	0.0018712774135644
11	10/29/2009	28.14	3.198294243	1,066.11	**2.20**	**3.198294243**		1.00	0.96	0.9311305014190350
12	10/28/2009	27.24	-3.414096916	1,042.63	**-1.99**	**-3.414096916**		-1.42	-1.45	2.1083153456579300
13	10/27/2009	28.17	-1.703940362	1,063.41	**-0.33**	**-1.703940362**		-1.37	-1.40	1.9655839045966800
14	10/26/2009	28.65	-0.837696335	1,066.95	**-1.19**	**-0.837696335**		0.35	0.32	0.1004778443147580
15	10/23/2009	28.89	-1.903772932	1,079.60	**-1.23**	**-1.903772932**		-0.67	-0.70	0.4925972661620530
16	10/22/2009	29.44	0.713315217	1,092.91	**1.05**	**0.713315217**		-0.34	-0.37	0.1374780237290420
17	10/21/2009	29.23	-0.410537119	1,081.40	**-0.89**	**-0.410537119**		0.48	0.45	0.2041282378036880
18	10/20/2009	29.35	-1.771720613	1,091.06	**-0.63**	**-1.771720613**		-1.14	-1.17	1.3802363997303700
19	10/19/2009	29.87	1.573485102	1,097.91	**0.93**	**1.573485102**		0.64	0.61	0.3730411024074820
20	10/16/2009	29.4	0.578231293	1,087.68	**-0.82**	**0.578231293**		1.39	1.36	1.8596887509861700
21	10/15/2009	29.23	1.094765652	1,096.56	**0.41**	**1.094765652**		0.68	0.65	0.4222397658579900
22	10/14/2009	28.91	1.729505361	1,092.02	**1.72**	**1.729505361**		0.01	-0.03	0.0006638796413838
23	10/13/2009	28.41	-0.809574094	1,073.19	**-0.28**	**-0.809574094**		-0.53	-0.56	0.3146957423097910
24	10/12/2009	28.64	0	1,076.19	**0.44**	**0**		-0.44	-0.47	0.2187149362240920
25	10/9/2009	28.64	-0.104748603	1,071.49	**0.56**	**-0.104748603**		-0.67	-0.70	0.4852426553810800
26	10/8/2009	28.67	1.743983258	1,065.48	**0.74**	**1.743983258**		1.00	0.97	0.9439862821468590
27	10/7/2009	28.17	-0.035498758	1,057.58	**0.27**	**-0.035498758**		-0.31	-0.34	0.1134822743059180
28	10/6/2009	28.18	1.80979418	1,054.72	**1.35**	**1.80979418**		0.46	0.43	0.1821861990756780

29	10/5/2009	27.67	1.662450307	1,040.46	**1.47**	**1.662450307**		0.20	0.17	0.0274924960298491
30	10/2/2009	27.21	-0.551267916	1,025.21	**-0.45**	**-0.551267916**		-0.10	-0.13	0.0168017450081042
31	10/1/2009	27.36	-0.365497076	1,029.85	**-2.64**	**-0.365497076**		2.28	2.25	5.0518562316817100
32	9/30/2009	27.46	-1.747997087	1,057.08	**-0.33**	**-1.747997087**		-1.41	-1.45	2.0880311905768900
33	9/29/2009	27.94	-1.03793844	1,060.61	**-0.22**	**-1.03793844**		-0.81	-0.85	0.7147450483798740
34	9/28/2009	28.23	2.160821821	1,062.98	**1.75**	**2.160821821**		0.41	0.38	0.1444609981060560
35	9/25/2009	27.62	-1.267197683	1,044.38	**-0.61**	**-1.267197683**		-0.65	-0.69	0.4696878236639640
36	9/24/2009	27.97	-0.393278513	1,050.78	**-0.96**	**-0.393278513**		0.57	0.54	0.2873139216348910
37	9/23/2009	28.08	-1.068376068	1,060.87	**-1.02**	**-1.068376068**		-0.05	-0.08	0.0067617978016776
38	9/22/2009	28.38	1.338971106	1,071.66	**0.65**	**1.338971106**		0.69	0.65	0.4288089197517170
39	9/21/2009	28	-1.571428571	1,064.66	**-0.34**	**-1.571428571**		-1.23	-1.26	1.5888078514579800
40	9/18/2009	28.44	-0.070323488	1,068.30	**0.26**	**-0.070323488**		-0.33	-0.36	0.1327159809023820
41	9/17/2009	28.46	0.31623331	1,065.49	**-0.31**	**0.31623331**		0.62	0.59	0.3506896238177670
42	9/16/2009	28.37	0.281988016	1,068.76	**1.51**	**0.281988016**		-1.23	-1.26	1.5830205845160700
43	9/15/2009	28.29	0.742311771	1,052.63	**0.31**	**0.742311771**		0.43	0.40	0.1590553759605920
44	9/14/2009	28.08	-1.210826211	1,049.34	**0.63**	**-1.210826211**		-1.84	-1.87	3.5032227075956700
45	9/11/2009	28.42	0.21111893	1,042.73	**-0.14**	**0.21111893**		0.35	0.32	0.0994753089988676
46	9/10/2009	28.36	4.971791255	1,044.14	**1.03**	**4.971791255**		3.94	3.91	15.2832250065863000
47	9/9/2009	26.95	2.486085343	1,033.37	**0.77**	**2.486085343**		1.71	1.68	2.8321889300989000
48	9/8/2009	26.28	1.445966514	1,025.39	**0.88**	**1.445966514**		0.57	0.54	0.2897486982367780
49	9/4/2009	25.9	1.776061776	1,016.40	**1.29**	**1.776061776**		0.48	0.45	0.2028170191160010
50	9/3/2009	25.44	0.157232704	1,003.24	**0.85**	**0.157232704**		-0.69	-0.72	0.5183557200956030
51	9/2/2009	25.4	-1.102362205	994.75	**-0.33**	**-1.102362205**		-0.77	-0.80	0.6441180734965270
52	9/1/2009	25.68	-1.401869159	998.04	**-2.26**	**-1.401869159**		0.86	0.83	0.6882716380629630
53	8/31/2009	26.04	-3.072196621	1,020.62	**-0.81**	**-3.072196621**		-2.26	-2.29	5.2391981685973100
54	8/28/2009	26.84	-0.63338301	1,028.93	**-0.20**	**-0.63338301**		-0.43	-0.47	0.2163093972966630
55	8/27/2009	27.01	0.037023325	1,030.98	**0.28**	**0.037023325**		-0.24	-0.27	0.0736180526154101
56	8/26/2009	27	0.481481481	1,028.12	**0.01**	**0.481481481**		0.47	0.44	0.1926032448844930
57	8/25/2009	26.87	0.260513584	1,028.00	**0.24**	**0.260513584**		0.02	-0.01	0.0000463974745248
58	8/24/2009	26.8	0.037313433	1,025.57	**-0.05**	**0.037313433**		0.09	0.06	0.0037177535582075
59	8/21/2009	26.79	3.359462486	1,026.13	**1.83**	**3.359462486**		1.53	1.50	2.2508708755186300
60	8/20/2009	25.89	1.58362302	1,007.37	**1.08**	**1.58362302**		0.50	0.47	0.2205814869982550
61	8/19/2009	25.48	1.098901099	996.46	**0.68**	**1.098901099**		0.42	0.39	0.1494170908189330
62	8/18/2009	25.2	0.436507937	989.67	**1.00**	**0.436507937**		-0.57	-0.60	0.3585747207852520
63	8/17/2009	25.09	-3.068951774	979.73	**-2.49**	**-3.068951774**		-0.58	-0.61	0.3763776974158050

64	8/14/2009	25.86	-1.54679041	1,004.09	**-0.86**	**-1.54679041**		-0.69	-0.72	0.5144527350708900
65	8/13/2009	26.26	0.152322925	1,012.73	**0.68**	**0.152322925**		-0.53	-0.56	0.3157568696340710
66	8/12/2009	26.22		1,005.81						67.5482954978778000
							total differences	2.01	0.00	
							mean	0.03094383		
							std dev	1.027347126		
							r-squared	0.613611839		
	Notes to Instructor:									
	I directly downloaded this data from the finance.yahoo.com Excel document that is why it is rearranged. You may want the students to simply put the data in from their									
	Group Task Chart where they can just copy and paste it into this document. I used the table to calculate the mean and standard deviation, but you									
	may simply use the statistical calculations under the fx button on the icons listed above. Whatever you see as fit.									

The line of best fit and r-square is found by right clicking on a point on the scatter plot and adding a trendline.


The Relationship Between Disney's and the S&P's Daily Rates of Return
y = 1.1305x + 0.0162
R² = 0.6136
Disney's Daily % Change
S&P Daily % Change
6
5
4
3
2
1
0
-1
-2
-3
-4
-4
-3
-2
-1
0
1
2
3

Excel Documents Showing Formulas (Disney Example for teachers)

	Excel Document		(Disney Example)							
	Date	Disney Close	Disney % Change	S&P Close	S&P % Return (x)	Disney % Change (y)		Deviations	Dev from Mean	(Dev from mean)^2
1	40129	29.05	=(C3-C4)/C3*100	1087.24	**=(E3-E4)/E3*100**	**=D3**		=G3-F3	=I3-I$70	=J3^2
2	40128	29.29	=(C4-C5)/C4*100	1098.51	**=(E4-E5)/E4*100**	**=D4**		=G4-F4	=I4-I$70	=J4^2
3	40127	29.12	=(C5-C6)/C5*100	1093.01	**=(E5-E6)/E5*100**	**=D5**		=G5-F5	=I5-I$70	=J5^2
4	40126	29	=(C6-C7)/C6*100	1093.08	**=(E6-E7)/E6*100**	**=D6**		=G6-F6	=I6-I$70	=J6^2
5	40123	28.56	=(C7-C8)/C7*100	1069.3	**=(E7-E8)/E7*100**	**=D7**		=G7-F7	=I7-I$70	=J7^2
6	40122	29	=(C8-C9)/C8*100	1066.63	**=(E8-E9)/E8*100**	**=D8**		=G8-F8	=I8-I$70	=J8^2
7	40121	28.03	=(C9-C10)/C9*100	1046.5	**=(E9-E10)/E9*100**	**=D9**		=G9-F9	=I9-I$70	=J9^2
8	40120	27.62	=(C10-C11)/C10*100	1045.41	**=(E10-E11)/E10*100**	**=D10**		=G10-F10	=I10-I$70	=J10^2
9	40119	27.41	=(C11-C12)/C11*100	1042.88	**=(E11-E12)/E11*100**	**=D11**		=G11-F11	=I11-I$70	=J11^2
10	40116	27.37	=(C12-C13)/C12*100	1036.19	**=(E12-E13)/E12*100**	**=D12**		=G12-F12	=I12-I$70	=J12^2
11	40115	28.14	=(C13-C14)/C13*100	1066.11	**=(E13-E14)/E13*100**	**=D13**		=G13-F13	=I13-I$70	=J13^2
12	40114	27.24	=(C14-C15)/C14*100	1042.63	**=(E14-E15)/E14*100**	**=D14**		=G14-F14	=I14-I$70	=J14^2
13	40113	28.17	=(C15-C16)/C15*100	1063.41	**=(E15-E16)/E15*100**	**=D15**		=G15-F15	=I15-I$70	=J15^2
14	40112	28.65	=(C16-C17)/C16*100	1066.95	**=(E16-E17)/E16*100**	**=D16**		=G16-F16	=I16-I$70	=J16^2
15	40109	28.89	=(C17-C18)/C17*100	1079.6	**=(E17-E18)/E17*100**	**=D17**		=G17-F17	=I17-I$70	=J17^2
16	40108	29.44	=(C18-C19)/C18*100	1092.91	**=(E18-E19)/E18*100**	**=D18**		=G18-F18	=I18-I$70	=J18^2
17	40107	29.23	=(C19-C20)/C19*100	1081.4	**=(E19-E20)/E19*100**	**=D19**		=G19-F19	=I19-I$70	=J19^2
18	40106	29.35	=(C20-C21)/C20*100	1091.06	**=(E20-E21)/E20*100**	**=D20**		=G20-F20	=I20-I$70	=J20^2
19	40105	29.87	=(C21-C22)/C21*100	1097.91	**=(E21-E22)/E21*100**	**=D21**		=G21-F21	=I21-I$70	=J21^2
20	40102	29.4	=(C22-C23)/C22*100	1087.68	**=(E22-E23)/E22*100**	**=D22**		=G22-F22	=I22-I$70	=J22^2
21	40101	29.23	=(C23-C24)/C23*100	1096.56	**=(E23-E24)/E23*100**	**=D23**		=G23-F23	=I23-I$70	=J23^2
22	40100	28.91	=(C24-C25)/C24*100	1092.02	**=(E24-E25)/E24*100**	**=D24**		=G24-F24	=I24-I$70	=J24^2
23	40099	28.41	=(C25-C26)/C25*100	1073.19	**=(E25-E26)/E25*100**	**=D25**		=G25-F25	=I25-I$70	=J25^2
24	40098	28.64	=(C26-C27)/C26*100	1076.19	**=(E26-E27)/E26*100**	**=D26**		=G26-F26	=I26-I$70	=J26^2
25	40095	28.64	=(C27-C28)/C27*100	1071.49	**=(E27-E28)/E27*100**	**=D27**		=G27-F27	=I27-I$70	=J27^2
26	40094	28.67	=(C28-C29)/C28*100	1065.48	**=(E28-E29)/E28*100**	**=D28**		=G28-F28	=I28-I$70	=J28^2
27	40093	28.17	=(C29-C30)/C29*100	1057.58	**=(E29-E30)/E29*100**	**=D29**		=G29-F29	=I29-I$70	=J29^2
28	40092	28.18	=(C30-C31)/C30*100	1054.72	**=(E30-E31)/E30*100**	**=D30**		=G30-F30	=I30-I$70	=J30^2

29	40091	27.67	=(C31-C32)/C31*100	1040.46	**=(E31-E32)/E31*100**	**=D31**		=G31-F31	=I31-I$70	=J31^2
30	40088	27.21	=(C32-C33)/C32*100	1025.21	**=(E32-E33)/E32*100**	**=D32**		=G32-F32	=I32-I$70	=J32^2
31	40087	27.36	=(C33-C34)/C33*100	1029.85	**=(E33-E34)/E33*100**	**=D33**		=G33-F33	=I33-I$70	=J33^2
32	40086	27.46	=(C34-C35)/C34*100	1057.08	**=(E34-E35)/E34*100**	**=D34**		=G34-F34	=I34-I$70	=J34^2
33	40085	27.94	=(C35-C36)/C35*100	1060.61	**=(E35-E36)/E35*100**	**=D35**		=G35-F35	=I35-I$70	=J35^2
34	40084	28.23	=(C36-C37)/C36*100	1062.98	**=(E36-E37)/E36*100**	**=D36**		=G36-F36	=I36-I$70	=J36^2
35	40081	27.62	=(C37-C38)/C37*100	1044.38	**=(E37-E38)/E37*100**	**=D37**		=G37-F37	=I37-I$70	=J37^2
36	40080	27.97	=(C38-C39)/C38*100	1050.78	**=(E38-E39)/E38*100**	**=D38**		=G38-F38	=I38-I$70	=J38^2
37	40079	28.08	=(C39-C40)/C39*100	1060.87	**=(E39-E40)/E39*100**	**=D39**		=G39-F39	=I39-I$70	=J39^2
38	40078	28.38	=(C40-C41)/C40*100	1071.66	**=(E40-E41)/E40*100**	**=D40**		=G40-F40	=I40-I$70	=J40^2
39	40077	28	=(C41-C42)/C41*100	1064.66	**=(E41-E42)/E41*100**	**=D41**		=G41-F41	=I41-I$70	=J41^2
40	40074	28.44	=(C42-C43)/C42*100	1068.3	**=(E42-E43)/E42*100**	**=D42**		=G42-F42	=I42-I$70	=J42^2
41	40073	28.46	=(C43-C44)/C43*100	1065.49	**=(E43-E44)/E43*100**	**=D43**		=G43-F43	=I43-I$70	=J43^2
42	40072	28.37	=(C44-C45)/C44*100	1068.76	**=(E44-E45)/E44*100**	**=D44**		=G44-F44	=I44-I$70	=J44^2
43	40071	28.29	=(C45-C46)/C45*100	1052.63	**=(E45-E46)/E45*100**	**=D45**		=G45-F45	=I45-I$70	=J45^2
44	40070	28.08	=(C46-C47)/C46*100	1049.34	**=(E46-E47)/E46*100**	**=D46**		=G46-F46	=I46-I$70	=J46^2
45	40067	28.42	=(C47-C48)/C47*100	1042.73	**=(E47-E48)/E47*100**	**=D47**		=G47-F47	=I47-I$70	=J47^2
46	40066	28.36	=(C48-C49)/C48*100	1044.14	**=(E48-E49)/E48*100**	**=D48**		=G48-F48	=I48-I$70	=J48^2
47	40065	26.95	=(C49-C50)/C49*100	1033.37	**=(E49-E50)/E49*100**	**=D49**		=G49-F49	=I49-I$70	=J49^2
48	40064	26.28	=(C50-C51)/C50*100	1025.39	**=(E50-E51)/E50*100**	**=D50**		=G50-F50	=I50-I$70	=J50^2
49	40060	25.9	=(C51-C52)/C51*100	1016.4	**=(E51-E52)/E51*100**	**=D51**		=G51-F51	=I51-I$70	=J51^2
50	40059	25.44	=(C52-C53)/C52*100	1003.24	**=(E52-E53)/E52*100**	**=D52**		=G52-F52	=I52-I$70	=J52^2
51	40058	25.4	=(C53-C54)/C53*100	994.75	**=(E53-E54)/E53*100**	**=D53**		=G53-F53	=I53-I$70	=J53^2
52	40057	25.68	=(C54-C55)/C54*100	998.04	**=(E54-E55)/E54*100**	**=D54**		=G54-F54	=I54-I$70	=J54^2
53	40056	26.04	=(C55-C56)/C55*100	1020.62	**=(E55-E56)/E55*100**	**=D55**		=G55-F55	=I55-I$70	=J55^2
54	40053	26.84	=(C56-C57)/C56*100	1028.93	**=(E56-E57)/E56*100**	**=D56**		=G56-F56	=I56-I$70	=J56^2
55	40052	27.01	=(C57-C58)/C57*100	1030.98	**=(E57-E58)/E57*100**	**=D57**		=G57-F57	=I57-I$70	=J57^2
56	40051	27	=(C58-C59)/C58*100	1028.12	**=(E58-E59)/E58*100**	**=D58**		=G58-F58	=I58-I$70	=J58^2
57	40050	26.87	=(C59-C60)/C59*100	1028	**=(E59-E60)/E59*100**	**=D59**		=G59-F59	=I59-I$70	=J59^2
58	40049	26.8	=(C60-C61)/C60*100	1025.57	**=(E60-E61)/E60*100**	**=D60**		=G60-F60	=I60-I$70	=J60^2
59	40046	26.79	=(C61-C62)/C61*100	1026.13	**=(E61-E62)/E61*100**	**=D61**		=G61-F61	=I61-I$70	=J61^2
60	40045	25.89	=(C62-C63)/C62*100	1007.37	**=(E62-E63)/E62*100**	**=D62**		=G62-F62	=I62-I$70	=J62^2
61	40044	25.48	=(C63-C64)/C63*100	996.46	**=(E63-E64)/E63*100**	**=D63**		=G63-F63	=I63-I$70	=J63^2
62	40043	25.2	=(C64-C65)/C64*100	989.67	**=(E64-E65)/E64*100**	**=D64**		=G64-F64	=I64-I$70	=J64^2
63	40042	25.09	=(C65-C66)/C65*100	979.73	**=(E65-E66)/E65*100**	**=D65**		=G65-F65	=I65-I$70	=J65^2

64	40039	25.86	=(C66-C67)/C66*100	1004.09	**=(E66-E67)/E66*100**	**=D66**		=G66-F66	=I66-I$70	=J66^2
65	40038	26.26	=(C67-C68)/C67*100	1012.73	**=(E67-E68)/E67*100**	**=D67**		=G67-F67	=I67-I$70	=J67^2
66	40037	26.22		1005.81						=SUM(K3:K67)
							total differences	=SUM(I3:I67)	=SUM(J3:J67)	
							mean	=I69/65		
							std dev	=(K68/(64))^(1/2)		
							r-squared	=RSQ(G3:G67,F3:F67)		

Basic Investing Terminology

Use Internet sites to define the following terms associated with investing. Once you have these defined, there will be a class discussion on the terms and then we will bring in a local expert to help answer questions we have pertaining to these topics and terms.

Stock
Diversification
Portfolio
Capital gain/loss
Dividends
P/E Ratio
Ticker Symbol
S&P 500
DJIA (Dow Jones Industrial Average)
NYSE (New York Stock Exchange)
Beta
r-squared
regression
Volatility
Historical Performance
Risk
Return
Types of Investors (Aggressive, Moderately Aggressive, Moderate, Moderately Conservative, Conservative)
Bear Market
Bull Market
Industry Types (i.e. Basic Materials, Conglomerates, Consumer Goods, Financial, Healthcare, Industrial Goods, Technology, Utilities)

Websites to Assist in Your Learning

Entry Event: http://preparewithpru.com/shared/content/quiz-what-kind-of-investor-am-i.php

The Basics for Investing in Stocks (http://www.investorprotection.org), http://www.investorwords.com

Stock portfolio trackers: http://www.forbes.com/forbes/welcome/,
http://www.forbes.com/templates/b4utrade/portfolio_launch.shtml

Stock Market Investment Simulators: http://www.investopedia.com/simulator/,
http://www.howthemarketworks.com/?gclid=CPSji4SEr8wCFYomhgod1o8JGw

Stock Industry Categories and Links: http://biz.yahoo.com/ic/ind_index.html

Risk spectrum defined: http://www.investopedia.com/articles/basics/03/050203.asp

NASADAQ risk management tool to determine the aggressiveness of a stock (must know the ticker symbols first): http://www.nasdaq.com/services/riskMetrics.stm

Map of the market showing the industry, individual stocks and a proportionate scale in the market:
http://www.smartmoney.com/map-of-the-market/

Daily and Historical Data as Excel Documents:
http://finance.yahoo.com

Individual Daily Activity Log

You **must complete this log every day.**.

Every day you need to keep track of what you have done for this project. You will need to keep reflections and notes to yourself in order to make progress on the project. Avoid feelings statements like (today was a good day, I am enjoying this, etc.), instead, try to write so that it helps you later. Use the following format on your own paper. This individual activity log will be collected at the completion of the project for analysis by the teacher.

Day #1 Date_____
Items completed today:

Reflections to help me/us progress:

Day #2 Date_____
Items completed today:

Reflections to help me/us progress:

Day #3 Date_____
Items completed today:

Reflections to help me/us progress:

Etc….

Group Agreement

- We all promise to listen to each other's ideas with respect.
- We all promise to do our assigned work to the best of our ability.
- We all promise to turn in our work on or before due dates.
- We all promise to ask for help if we need it.
- We all promise to share responsibility for our success and for our mistakes.
- We all promise to turn in work that is our own.

If someone in our group breaks one or more of our rules, the group has the right to call a meeting and ask the person to follow the rules. If the person still breaks one or more of our rules, we have the right to vote to fire that person.

_____

Group member signatures:

Date:

Group Task Chart

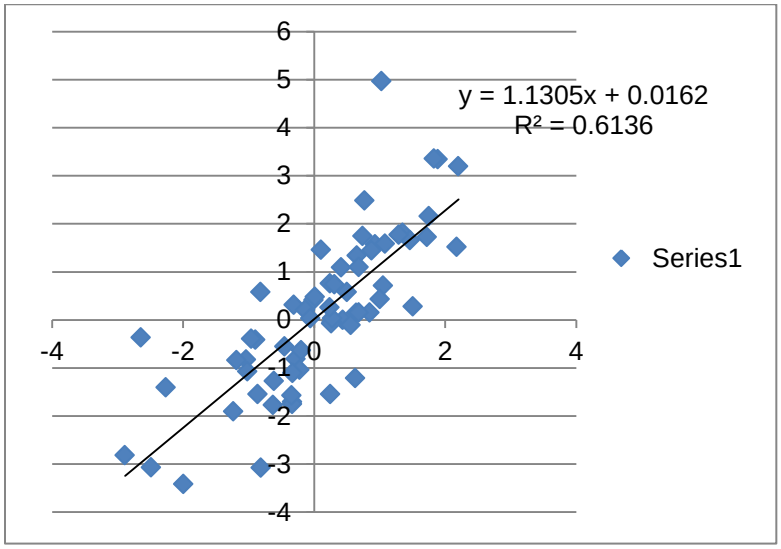
Group Member Assigned	(Back-up Group Member)		Date	Stock1	Stock2	Stock3	Stock4	Stock5	S&P
			mm/dd/yy	(Insert Name)	(Insert Name)	(Insert Name)	(Insert Name	(Insert Name)	
		Day 1							
		Day 2							
		Day 3							
		Day 4							
		Day 5							
		Day 6							
		Day 7							
		Day 8							
		Day 9							
		Day 10							
		Day 11							
		Day 12							
		Day 13							
		Day 14							
		Day 15							
		Day 16							
		Day 17							
		Day 18							
		Day 19							
		Day 20							
		Day 21							
		Day 22							
		Day 23							
		Day 24							
		Day 25							
		Day 26							
		Day 27							
		Day 28							
		Day 29							
		Day 30							

		Day 31							
		Day 32							
		Day 33							
		Day 34							
		Day 35							
		Day 36							
		Day 37							
		Day 38							
		Day 39							
		Day 40							
		Day 41							
		Day 42							
		Day 43							
		Day 44							
		Day 45							

Excel Document (Disney Example)

Date	Disney Close	Disney % Return	S&P Close	S&P % Return	Disney % Return		Deviations	Dev from Mean	(Dev from mean)^2
11/12/2009	29.05	-0.82616179	1,087.24	-1.04	-0.82616179		0.21	0.18	0.0322073425439116
11/11/2009	29.29	0.580402868	1,098.51	0.50	0.580402868		0.08	0.05	0.0023795709727403
11/10/2009	29.12	0.412087912	1,093.01	-0.01	0.412087912		0.42	0.39	0.1501937739253420
11/9/2009	29	1.517241379	1,093.08	2.18	1.517241379		-0.66	-0.69	0.4750056424231290
11/6/2009	28.56	-1.540616246	1,069.30	0.25	-1.540616246		-1.79	-1.82	3.3169739255805300
11/5/2009	29	3.344827586	1,066.63	1.89	3.344827586		1.46	1.43	2.0352770994610900
11/4/2009	28.03	1.462718516	1,046.50	0.10	1.462718516		1.36	1.33	1.7625694819419300
11/3/2009	27.62	0.76031861	1,045.41	0.24	0.76031861		0.52	0.49	0.2375241244997400
11/2/2009	27.41	0.145932142	1,042.88	0.64	0.145932142		-0.50	-0.53	0.2772069651202240
10/30/2009	27.37	-2.813299233	1,036.19	-2.89	-2.813299233		0.07	0.04	0.0018712774135644
10/29/2009	28.14	3.198294243	1,066.11	2.20	3.198294243		1.00	0.96	0.9311305014190350
10/28/2009	27.24	-3.414096916	1,042.63	-1.99	-3.414096916		-1.42	-1.45	2.1083153456579300
10/27/2009	28.17	-1.703940362	1,063.41	-0.33	-1.703940362		-1.37	-1.40	1.9655839045966800
10/26/2009	28.65	-0.837696335	1,066.95	-1.19	-0.837696335		0.35	0.32	0.1004778443147580
10/23/2009	28.89	-1.903772932	1,079.60	-1.23	-1.903772932		-0.67	-0.70	0.4925972661620530
10/22/2009	29.44	0.713315217	1,092.91	1.05	0.713315217		-0.34	-0.37	0.1374780237290420
10/21/2009	29.23	-0.410537119	1,081.40	-0.89	-0.410537119		0.48	0.45	0.2041282378036880
10/20/2009	29.35	-1.771720613	1,091.06	-0.63	-1.771720613		-1.14	-1.17	1.3802363997303700
10/19/2009	29.87	1.573485102	1,097.91	0.93	1.573485102		0.64	0.61	0.3730411024074820
10/16/2009	29.4	0.578231293	1,087.68	-0.82	0.578231293		1.39	1.36	1.8596887509861700
10/15/2009	29.23	1.094765652	1,096.56	0.41	1.094765652		0.68	0.65	0.4222397658579900
10/14/2009	28.91	1.729505361	1,092.02	1.72	1.729505361		0.01	-0.03	0.0006638796413838
10/13/2009	28.41	-0.809574094	1,073.19	-0.28	-0.809574094		-0.53	-0.56	0.3146957423097910
10/12/2009	28.64	0	1,076.19	0.44	0		-0.44	-0.47	0.2187149362240920
10/9/2009	28.64	-0.104748603	1,071.49	0.56	-0.104748603		-0.67	-0.70	0.4852426553810800
10/8/2009	28.67	1.743983258	1,065.48	0.74	1.743983258		1.00	0.97	0.9439862821468590
10/7/2009	28.17	-0.035498758	1,057.58	0.27	-0.035498758		-0.31	-0.34	0.1134822743059180
10/6/2009	28.18	1.80979418	1,054.72	1.35	1.80979418		0.46	0.43	0.1821861990756780
10/5/2009	27.67	1.662450307	1,040.46	1.47	1.662450307		0.20	0.17	0.0274924960298491
10/2/2009	27.21	-0.551267916	1,025.21	-0.45	-0.551267916		-0.10	-0.13	0.0168017450081042
10/1/2009	27.36	-0.365497076	1,029.85	-2.64	-0.365497076		2.28	2.25	5.0518562316817100
9/30/2009	27.46	-1.747997087	1,057.08	-0.33	-1.747997087		-1.41	-1.45	2.0880311905768900
9/29/2009	27.94	-1.03793844	1,060.61	-0.22	-1.03793844		-0.81	-0.85	0.7147450483798740
9/28/2009	28.23	2.160821821	1,062.98	1.75	2.160821821		0.41	0.38	0.1444609981060560
9/25/2009	27.62	-1.267197683	1,044.38	-0.61	-1.267197683		-0.65	-0.69	0.4696878236639640
9/24/2009	27.97	-0.393278513	1,050.78	-0.96	-0.393278513		0.57	0.54	0.2873139216348910

9/23/2009	28.08	-1.068376068	1,060.87	-1.02	-1.068376068		-0.05	-0.08	0.0067617978016776
9/22/2009	28.38	1.338971106	1,071.66	0.65	1.338971106		0.69	0.65	0.4288089197517170
9/21/2009	28	-1.571428571	1,064.66	-0.34	-1.571428571		-1.23	-1.26	1.5888078514579800
9/18/2009	28.44	-0.070323488	1,068.30	0.26	-0.070323488		-0.33	-0.36	0.1327159809023820
9/17/2009	28.46	0.31623331	1,065.49	-0.31	0.31623331		0.62	0.59	0.3506896238177670
9/16/2009	28.37	0.281988016	1,068.76	1.51	0.281988016		-1.23	-1.26	1.5830205845160700
9/15/2009	28.29	0.742311771	1,052.63	0.31	0.742311771		0.43	0.40	0.1590553759605920
9/14/2009	28.08	-1.210826211	1,049.34	0.63	-1.210826211		-1.84	-1.87	3.5032227075956700
9/11/2009	28.42	0.21111893	1,042.73	-0.14	0.21111893		0.35	0.32	0.0994753089988676
9/10/2009	28.36	4.971791255	1,044.14	1.03	4.971791255		3.94	3.91	15.2832250065863000
9/9/2009	26.95	2.486085343	1,033.37	0.77	2.486085343		1.71	1.68	2.8321889300989000
9/8/2009	26.28	1.445966514	1,025.39	0.88	1.445966514		0.57	0.54	0.2897486982367780
9/4/2009	25.9	1.776061776	1,016.40	1.29	1.776061776		0.48	0.45	0.2028170191160010
9/3/2009	25.44	0.157232704	1,003.24	0.85	0.157232704		-0.69	-0.72	0.5183557200956030
9/2/2009	25.4	-1.102362205	994.75	-0.33	-1.102362205		-0.77	-0.80	0.6441180734965270
9/1/2009	25.68	-1.401869159	998.04	-2.26	-1.401869159		0.86	0.83	0.6882716380629630
8/31/2009	26.04	-3.072196621	1,020.62	-0.81	-3.072196621		-2.26	-2.29	5.2391981685973100
8/28/2009	26.84	-0.63338301	1,028.93	-0.20	-0.63338301		-0.43	-0.47	0.2163093972966630
8/27/2009	27.01	0.037023325	1,030.98	0.28	0.037023325		-0.24	-0.27	0.0736180526154101
8/26/2009	27	0.481481481	1,028.12	0.01	0.481481481		0.47	0.44	0.1926032448844930
8/25/2009	26.87	0.260513584	1,028.00	0.24	0.260513584		0.02	-0.01	0.0000463974745248
8/24/2009	26.8	0.037313433	1,025.57	-0.05	0.037313433		0.09	0.06	0.0037177535582075
8/21/2009	26.79	3.359462486	1,026.13	1.83	3.359462486		1.53	1.50	2.2508708755186300
8/20/2009	25.89	1.58362302	1,007.37	1.08	1.58362302		0.50	0.47	0.2205814869982550
8/19/2009	25.48	1.098901099	996.46	0.68	1.098901099		0.42	0.39	0.1494170908189330
8/18/2009	25.2	0.436507937	989.67	1.00	0.436507937		-0.57	-0.60	0.3585747207852520
8/17/2009	25.09	-3.068951774	979.73	-2.49	-3.068951774		-0.58	-0.61	0.3763776974158050
8/14/2009	25.86	-1.54679041	1,004.09	-0.86	-1.54679041		-0.69	-0.72	0.5144527350708900
8/13/2009	26.26	0.152322925	1,012.73	0.68	0.152322925		-0.53	-0.56	0.3157568696340710
8/12/2009	26.22		1,005.81						67.5482954978778000
						total differences	2.01	0.00	
						mean	0.03094383		
						std dev	1.02734713		


y = 1.1305x + 0.0162
R² = 0.6136
Series1
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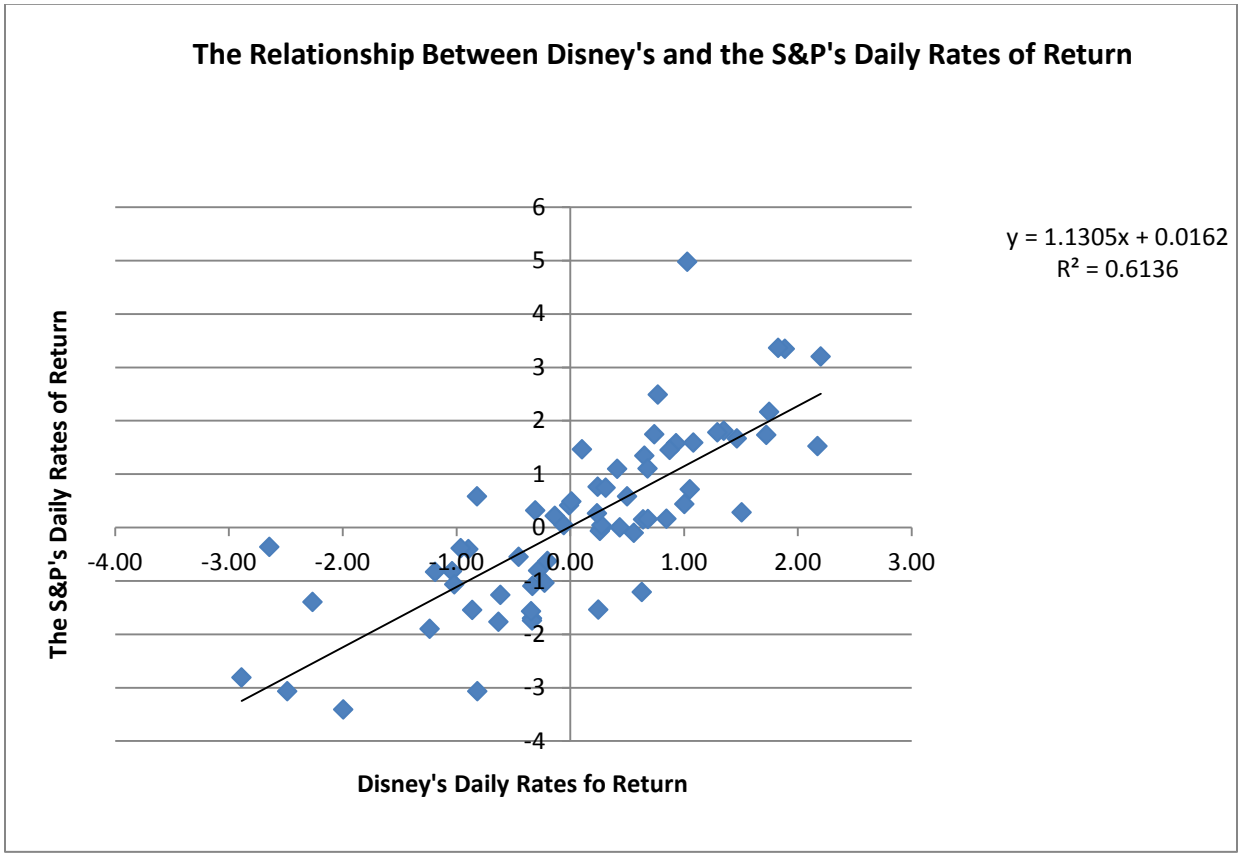
-1
-2
-3
-4
-4
-2
0
2
4

Excel Document (Disney Formulas Example)

	Date	Disney Close	Disney % Return	S&P Close	S&P % Return	Disney % Return		Deviations	Dev from Mean	(Dev from mean)^2
1	*Day 1 (Nov, 12, 2009)*	29.05	=(C3-C4)/C3*100	1087.24	=(E3-E4)/E3*100	=D3		=G3-F3	=I3-I$70	=J3^2
2	*Day 2 (Nov 11, 2009)*	29.29	=(C4-C5)/C4*100	1098.51	=(E4-E5)/E4*100	=D4		=G4-F4	=I4-I$70	=J4^2
3	*Day 3*	29.12	=(C5-C6)/C5*100	1093.01	=(E5-E6)/E5*100	=D5		=G5-F5	=I5-I$70	=J5^2
4	*Day 4*	29	=(C6-C7)/C6*100	1093.08	=(E6-E7)/E6*100	=D6		=G6-F6	=I6-I$70	=J6^2
5	*Day 5*	28.56	=(C7-C8)/C7*100	1069.3	=(E7-E8)/E7*100	=D7		=G7-F7	=I7-I$70	=J7^2
6	*etc.*	29	=(C8-C9)/C8*100	1066.63	=(E8-E9)/E8*100	=D8		=G8-F8	=I8-I$70	=J8^2
7	*Note, my days are*	28.03	=(C9-C10)/C9*100	1046.5	=(E9-E10)/E9*100	=D9		=G9-F9	=I9-I$70	=J9^2
8	*backwards, for when I*	27.62	=(C10-C11)/C10*100	1045.41	=(E10-E11)/E10*100	=D10		=G10-F10	=I10-I$70	=J10^2
9	*was collecting data for*	27.41	=(C11-C12)/C11*100	1042.88	=(E11-E12)/E11*100	=D11		=G11-F11	=I11-I$70	=J11^2
10	*examples, but you want*	27.37	=(C12-C13)/C12*100	1036.19	=(E12-E13)/E12*100	=D12		=G12-F12	=I12-I$70	=J12^2
11	*to track this as a 30-45*	28.14	=(C13-C14)/C13*100	1066.11	=(E13-E14)/E13*100	=D13		=G13-F13	=I13-I$70	=J13^2
12	*day period.*	27.24	=(C14-C15)/C14*100	1042.63	=(E14-E15)/E14*100	=D14		=G14-F14	=I14-I$70	=J14^2
13		28.17	=(C15-C16)/C15*100	1063.41	=(E15-E16)/E15*100	=D15		=G15-F15	=I15-I$70	=J15^2
14		28.65	=(C16-C17)/C16*100	1066.95	=(E16-E17)/E16*100	=D16		=G16-F16	=I16-I$70	=J16^2
15		28.89	=(C17-C18)/C17*100	1079.6	=(E17-E18)/E17*100	=D17		=G17-F17	=I17-I$70	=J17^2
16		29.44	=(C18-C19)/C18*100	1092.91	=(E18-E19)/E18*100	=D18		=G18-F18	=I18-I$70	=J18^2
17		29.23	=(C19-C20)/C19*100	1081.4	=(E19-E20)/E19*100	=D19		=G19-F19	=I19-I$70	=J19^2
18		29.35	=(C20-C21)/C20*100	1091.06	=(E20-E21)/E20*100	=D20		=G20-F20	=I20-I$70	=J20^2
19		29.87	=(C21-C22)/C21*100	1097.91	=(E21-E22)/E21*100	=D21		=G21-F21	=I21-I$70	=J21^2
20		29.4	=(C22-C23)/C22*100	1087.68	=(E22-E23)/E22*100	=D22		=G22-F22	=I22-I$70	=J22^2
21		29.23	=(C23-C24)/C23*100	1096.56	=(E23-E24)/E23*100	=D23		=G23-F23	=I23-I$70	=J23^2
22		28.91	=(C24-C25)/C24*100	1092.02	=(E24-E25)/E24*100	=D24		=G24-F24	=I24-I$70	=J24^2
23		28.41	=(C25-C26)/C25*100	1073.19	=(E25-E26)/E25*100	=D25		=G25-F25	=I25-I$70	=J25^2
24		28.64	=(C26-C27)/C26*100	1076.19	=(E26-E27)/E26*100	=D26		=G26-F26	=I26-I$70	=J26^2
25		28.64	=(C27-C28)/C27*100	1071.49	=(E27-E28)/E27*100	=D27		=G27-F27	=I27-I$70	=J27^2
26		28.67	=(C28-C29)/C28*100	1065.48	=(E28-E29)/E28*100	=D28		=G28-F28	=I28-I$70	=J28^2
27		28.17	=(C29-C30)/C29*100	1057.58	=(E29-E30)/E29*100	=D29		=G29-F29	=I29-I$70	=J29^2
28		28.18	=(C30-C31)/C30*100	1054.72	=(E30-E31)/E30*100	=D30		=G30-F30	=I30-I$70	=J30^2
29		27.67	=(C31-C32)/C31*100	1040.46	=(E31-E32)/E31*100	=D31		=G31-F31	=I31-I$70	=J31^2
30		27.21	=(C32-C33)/C32*100	1025.21	=(E32-E33)/E32*100	=D32		=G32-F32	=I32-I$70	=J32^2
31		27.36	=(C33-C34)/C33*100	1029.85	=(E33-E34)/E33*100	=D33		=G33-F33	=I33-I$70	=J33^2
32		27.46	=(C34-C35)/C34*100	1057.08	=(E34-E35)/E34*100	=D34		=G34-F34	=I34-I$70	=J34^2

33		27.94	=(C35-C36)/C35*100	1060.61	=(E35-E36)/E35*100	=D35		=G35-F35	=I35-I$70	=J35^2
34		28.23	=(C36-C37)/C36*100	1062.98	=(E36-E37)/E36*100	=D36		=G36-F36	=I36-I$70	=J36^2
35		27.62	=(C37-C38)/C37*100	1044.38	=(E37-E38)/E37*100	=D37		=G37-F37	=I37-I$70	=J37^2
36		27.97	=(C38-C39)/C38*100	1050.78	=(E38-E39)/E38*100	=D38		=G38-F38	=I38-I$70	=J38^2
37		28.08	=(C39-C40)/C39*100	1060.87	=(E39-E40)/E39*100	=D39		=G39-F39	=I39-I$70	=J39^2
38		28.38	=(C40-C41)/C40*100	1071.66	=(E40-E41)/E40*100	=D40		=G40-F40	=I40-I$70	=J40^2
39		28	=(C41-C42)/C41*100	1064.66	=(E41-E42)/E41*100	=D41		=G41-F41	=I41-I$70	=J41^2
40		28.44	=(C42-C43)/C42*100	1068.3	=(E42-E43)/E42*100	=D42		=G42-F42	=I42-I$70	=J42^2
41		28.46	=(C43-C44)/C43*100	1065.49	=(E43-E44)/E43*100	=D43		=G43-F43	=I43-I$70	=J43^2
42		28.37	=(C44-C45)/C44*100	1068.76	=(E44-E45)/E44*100	=D44		=G44-F44	=I44-I$70	=J44^2
43		28.29	=(C45-C46)/C45*100	1052.63	=(E45-E46)/E45*100	=D45		=G45-F45	=I45-I$70	=J45^2
44		28.08	=(C46-C47)/C46*100	1049.34	=(E46-E47)/E46*100	=D46		=G46-F46	=I46-I$70	=J46^2
45		28.42	=(C47-C48)/C47*100	1042.73	=(E47-E48)/E47*100	=D47		=G47-F47	=I47-I$70	=J47^2
46		28.36	=(C48-C49)/C48*100	1044.14	=(E48-E49)/E48*100	=D48		=G48-F48	=I48-I$70	=J48^2
47		26.95	=(C49-C50)/C49*100	1033.37	=(E49-E50)/E49*100	=D49		=G49-F49	=I49-I$70	=J49^2
48		26.28	=(C50-C51)/C50*100	1025.39	=(E50-E51)/E50*100	=D50		=G50-F50	=I50-I$70	=J50^2
49		25.9	=(C51-C52)/C51*100	1016.4	=(E51-E52)/E51*100	=D51		=G51-F51	=I51-I$70	=J51^2
50		25.44	=(C52-C53)/C52*100	1003.24	=(E52-E53)/E52*100	=D52		=G52-F52	=I52-I$70	=J52^2
51		25.4	=(C53-C54)/C53*100	994.75	=(E53-E54)/E53*100	=D53		=G53-F53	=I53-I$70	=J53^2
52		25.68	=(C54-C55)/C54*100	998.04	=(E54-E55)/E54*100	=D54		=G54-F54	=I54-I$70	=J54^2
53		26.04	=(C55-C56)/C55*100	1020.62	=(E55-E56)/E55*100	=D55		=G55-F55	=I55-I$70	=J55^2
54		26.84	=(C56-C57)/C56*100	1028.93	=(E56-E57)/E56*100	=D56		=G56-F56	=I56-I$70	=J56^2
55		27.01	=(C57-C58)/C57*100	1030.98	=(E57-E58)/E57*100	=D57		=G57-F57	=I57-I$70	=J57^2
56		27	=(C58-C59)/C58*100	1028.12	=(E58-E59)/E58*100	=D58		=G58-F58	=I58-I$70	=J58^2
57		26.87	=(C59-C60)/C59*100	1028	=(E59-E60)/E59*100	=D59		=G59-F59	=I59-I$70	=J59^2
58		26.8	=(C60-C61)/C60*100	1025.57	=(E60-E61)/E60*100	=D60		=G60-F60	=I60-I$70	=J60^2
59		26.79	=(C61-C62)/C61*100	1026.13	=(E61-E62)/E61*100	=D61		=G61-F61	=I61-I$70	=J61^2
60		25.89	=(C62-C63)/C62*100	1007.37	=(E62-E63)/E62*100	=D62		=G62-F62	=I62-I$70	=J62^2
61		25.48	=(C63-C64)/C63*100	996.46	=(E63-E64)/E63*100	=D63		=G63-F63	=I63-I$70	=J63^2
62		25.2	=(C64-C65)/C64*100	989.67	=(E64-E65)/E64*100	=D64		=G64-F64	=I64-I$70	=J64^2
63		25.09	=(C65-C66)/C65*100	979.73	=(E65-E66)/E65*100	=D65		=G65-F65	=I65-I$70	=J65^2
64		25.86	=(C66-C67)/C66*100	1004.09	=(E66-E67)/E66*100	=D66		=G66-F66	=I66-I$70	=J66^2
65		26.26	=(C67-C68)/C67*100	1012.73	=(E67-E68)/E67*100	=D67		=G67-F67	=I67-I$70	=J67^2
66	*Day 66 (8/12/2009)*	26.22		1005.81						=SUM(K3:K67)

							total differences	=SUM(I3:I67)	=SUM(J3:J67)	
							mean	=I69/65		
							std dev	=(K68/(64))^(1/2)		
							r-squared	used the fx button		



Excel Document (Stock Chart Directions)

	Excel Document				Stock Daily Rates of Return: (Stock Name here)			
					**Note: You must make one of these for each of your five stocks.			
Day #	**Date**	**(Named Stock)'s Closing $**	**S&P Close $**	**S&P's % Change**	**(Named Stock)'s % Change**	**Deviations**	**Deviations from the Mean**	**(Dev. From mean)^2**
1	*(days entered*	*These are to be found on a daily*		*Use excel formulas to calculate this.*		*The deviation between*	*The difference*	*Square previous*
	over the course	*basis by group members using an*		*The rate of return is defined as the %*		*the Stock's % Return*	*between the*	*column's values*
2	*of the project to*	*reputable source.*		*increase or decrease from one day*		*and the S&P's %*	*deviations and the*	
	be determined			*to the next.*		*Return*	*mean*	
3	*by the teacher.)*						*(Found below)*	
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**Insert a scatter plot below or on a new sheet which shows the relationship between the						total differences =	*sum of this column*	sum of this column
x: S&P Daily Rate of Return and y: (Stock Named)'s Daily Rate of Return								
Include the line of best fit including the equation and the r-squared value.						mean=	calculate the mean deviations	
						standard deviation=	calculate the standard	
							deviation of the differences of daily rates of change	
						r-squared=	calculate the r-squared	

Investment Plan Portfolio & Presentation

Individualize the plan to your group's personalized level of organization and planning.

The Portfolio should include the following:

1) A summary of why you chose the four stocks.
2) Excel documents keeping track of each of the daily progresses of the four chosen stocks as well as the statistical calculations and graphs. Upon completion of the statistics, you want to compare the statistics you formulated with the stock information on finance.yahoo.com to see how close the technical statistics are to the actual page's data.
3) The Individual Stock Analysis Report for each of the four stocks.
4) A summary of how they would use this information to help them choose stocks for a real portfolio.
5) Questions they would have for a financial advisor on their potential portfolio selections based off of this data and statistical analysis.

The PowerPoint Presentation should include:

1) A catchy title/intro
2) 4 stocks chosen and why
3) 4 stocks' statistics (no Excel documents necessary, just statistics obtained)
4) Questions they have for advisory board
5) Works cited

See the Final Presentation Rubric for details of what is expected of this presentation and final product.

Individual Stock Analysis Report

Students look at daily, but do not record on this report, although it may be noted in an Individual Daily Activity Log reflection. Students will generate a final copy for the final day in order to see how the values compare to their technical calculations and predictions.

Ending Date:	
Stock Name:	
Ticker Symbol:	
Beta Value:	
Ending Value:	
R^2 Value:	
Amount Up or Down for Day?	
P/E Ratio:	

Collaboration Rubric

Name_____

Individual

4	3	2	1
I do my fair share of the group's work.	I do some of the group's work (or more than my share and don't value other's work.)	I do very little of the group's work.	I do not do any of the group's work.
I do not argue with my team members.	I argue a little with my team members.	I argue a lot with my team members.	I usually argue with my team members.
I talk and listen about equally in my group.	I listen to my team members, but sometimes I talk too much.	I talk a lot more than I listen to my team members.	I talk most of the time and listen very little.
I make important contributions to the group.	I contribute to the group.	I contribute very little to the group	I do not contribute to the group.
I help the group make fair decisions.	I consider all points of view before I decide what I think the group should do.	I "take sides" when our group makes decisions.	I make the group do things my way.
I stayed on task and helped the group stay on task.	I stayed on task, but need not care what the rest of the group did.	I was not on task.	I did not stay on task and kept others from staying on task.

Group

Rank your group on a scale of 1 – 4.

1 – never 2 - sometimes 3 - usually 4 – always

_____Our group works together well

_____Our group gets our work done

_____Our group stays on task

_____Our group divides up tasks fairly

_____Our group makes decisions fairly

Final Presentation Rubric

Members:_____

To calculate the points earned (out of 40) multiply each category score (4,3,2,or1) by:

Spreadsheet Content and Calculations _____x 6=_____(24possible); Stock Choices and Reasons _____x 1= _____(4 possible); PowerPoint Presentation _____x 2= _____(8 possible); Questions for Advisory Board _____x 0.5= _____(2 possible); Presentation Style _____x 0.5=_____(2 possible)

	4	3	2	1
Spreadsheet Content and Calculations 60%	All calculations are correct for each of the five stocks. The spreadsheets contain data collected for 30-45 days on closing prices for the stock and the S&P. The calculations include daily % returns, deviations, deviations from the mean, deviations from the mean squared, the total mean and standard deviation. There is a scatter plot included with the linear regression analysis performed.	There are a few minor calculation errors in one or all five stocks, but it does not cause a major detriment to the overall statistics.	There are several major calculation errors in one or all five stocks that compromises the validity of the overall statistics.	There are incomplete calculations resulting in a basic lack of understanding of the statistics.
Stock Choices and Reasons 10%	The presentation expresses how the risk assessment, individual stock analyses, and excel documents support their stock choices.	The presentation is lacking 1 of the major elements in support of their stock choices.	The presentation lacks all the elements but the students are still able to support the stock choices.	The presentation shows a weak understanding of the types of stocks to choose based off of the risk assessment.
PowerPoint Presentation 20%	The presentation has a catchy title/intro, clearly states the 5 stocks chosen with statistics to support the choice, questions they have for advisory board, and works cited.	The presentation is lacking 1 of the major elements.	The presentation is lacking 2 of the major elements.	The presentation is lacking 3 or more major elements.
Questions for Advisory Board 5%	The questions presented would result in confidence in the stocks selected based off of predetermined level of risk.	The questions presented would result in some confidence in the stocks selected based off of predetermine level of risk.	The questions result in some confusion as to the types of stocks that should be selected based off of predetermined level of risk.	The questions create confusion about the students' level of understanding of their predetermined level of risk.
Presentation Style 5%	The presentation flowed smoothly and all the committee members participated.	The presentation flowed smoothly most of the time and all members participated at some capacity.	The presentation has some weakness in flow and there were a few members dominating the presentation.	The presentation has major weaknesses and one member dominated the presentation.

Self Evaluation

1. How did I feel about the way that learning is addressed in this project?

2. Did I do my best work?

3. Did I do my fair share of work? Explain.

4. Do I feel that I did more than my fair share of work? Explain.

5. What did I learn about my work ethic and myself during this project?

6. What are some things I would like to improve about myself while working on projects like this?

Peer Evaluation

Evaluator's Name_____

List Group Members being Assessed:

Good Job On:	
Suggestions for improvement:	
Items that were exceptional in this presentation:	
If I could give this group a grade, I would give them:	, because

Project Evaluation

1. What did you like best about this project?

2. How well did the group agreement work?

3. What would you change about this project if you could do it again?

4. How do you feel about the amount of time this project took to complete?

5. Would you like to do another project like this? If so, include topics of interest.