

ETT 101 – Computer Applications for Engineering Technology

Group Work 2: Research project

Introduction:

Engineering predominantly involves the applications of scientific methods to solve societal problems. Before a solution to a problem is determined, often data must be collected that is analyzed to find the best solution to the problem. This assignment will include four parts: *Research, Data collection, data analysis, and formal report presentation.*

NOTE: *the following is a fictitious example designed to give you, the student, an idea of what a typical project would entail regarding the data collection / presentation.*

A company by the name of *Thoen-tronix* in Santa Ana California is planning on offsetting its power consumption by installing Solar panels on the top of one of their production facilities. Thoen-tronix manufactures plastic toys that resemble popular rock groups. They realize that in order to implement their newest toy, the "*Tool collection*", more energy will be required than previously expected. In order to meet the power requirements to create this new toy, their company would require an additional 200 KW hours of electricity per month, which would put them into the higher tier for electricity costs. If they install solar panels, not only will a cost reduction be realized, but they will also receive green credits from the city of Santa Ana. Thoen-tronix wants your company to conduct research and create a chart describing how much electricity their different products require to be manufactured, and produce a report to discuss the overall cost savings vs. cost to implement the solar panel power system. These types of proposals are often referred to as "feasibility reports." In addition, Thoen-tronix would like you to present your information to the board of directors.

Research / Data Collection / Analysis:

In order to determine the cost effectiveness of installing solar panels (in this example), Thoen-tronix has contracted your engineering company to determine the average amount of sunlight available in the city. This is calculated by determining the number of rainy days the city has, and the average daylight in a given month. This data can be found by performing internet research. It is your job to collect this information, display the information in charts or graphs (using Excel), and then presenting the information in a clear 7-8 page report to the company. The report uses the following format:

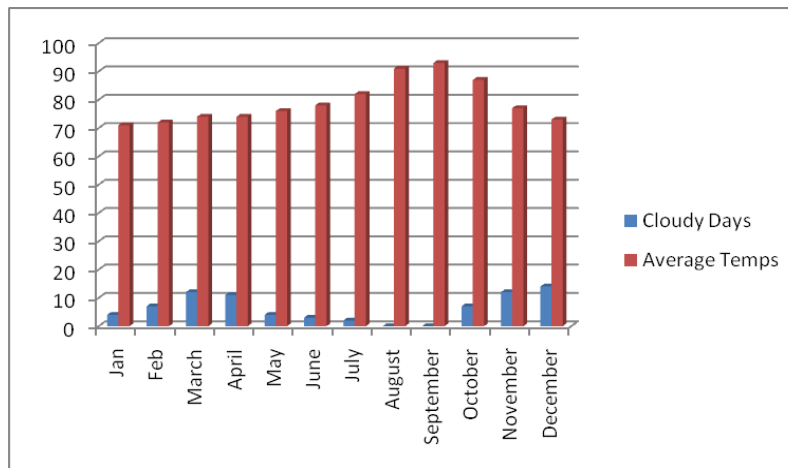
1. Cover Page
2. Detailed Introduction to problem – include problem statement / overall goals / risks
3. Data Collected: raw data (i.e. numbers) copied from an Excel Spreadsheet
4. Graphs / charts / etc.
5. Written report analyzing and presenting the data
6. Conclusion / Recommendation
7. Website, or citations where data came from

Your assignment is to create a similar report based on real world data (not fictional), although the reason for researching the data may be made up. Examples include naturally occurring events, such as rainfall, temperatures, etc. Or it can be based on data from Industries, schools, etc. It doesn't need to

be completely scientific, for example it may be related to the number of people in a building, or in a class. *You can choose whatever data you want to use, but it must be from an actual source.* You can even perform an actual experiment if you would like – it is up to you. As another example, you can base the research on a hobby of yours, for example if you like cars you can research the horsepower of available cars, and how much each car costs, or how many of which type of cars are sold. You must include at least two sets of data, as shown in the following examples. In your report you must also show the raw data, and then the data presented in a graph or chart. An example of parts 3 and 4 are shown on the following pages:

Month	Cloudy Days	Average Temps
Jan	4	71
Feb	7	72
March	12	74
April	11	74
May	4	76
June	3	78
July	2	82
August	0	91
September	0	93
October	7	87
November	12	77
December	14	73

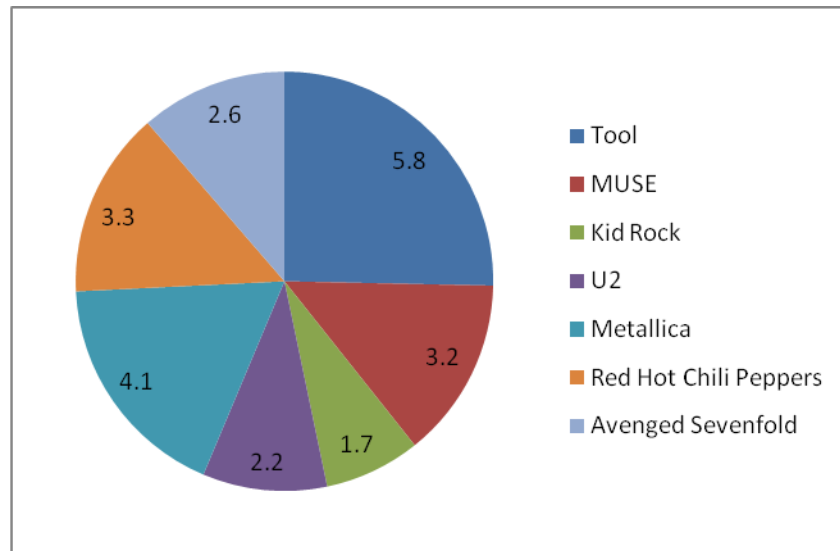
Raw Data#1



Graph of Raw Data#1

Tool	5.8
MUSE	3.2
Kid Rock	1.7
U2	2.2
Metallica	4.1
Red Hot Chili Peppers	3.3
Avenged Sevenfold	2.6

Raw Data #2



Graph of Raw Data #2

Report: The report will be due in two weeks, on May 15, by the end of the lab, at 5:50 P.M. Name the report as gw2LastFirst.doc, where Last and First are names of the group's leader. Include the names of all group members on the cover page. A summary of your project concept must be shown to the instructor and "signed off" by next Wednesday (5/8/2013).

Formal Presentations: Presentations will involve all team members and will run for 10 minutes. These will be done during the lab, in two weeks, on May 15. This is a group project. Your whole group will receive the same grade for this project.

Grading:

You will be graded on the following:

- Professional appearance of the report and PPT slides
- Inclusion of all parts of the report that are required (#1-7)
- Relationship between data and problem statement
- Reasonable assessment / recommendation
- Conclusion
- Quality / representation of data

Grading rubric:

Report: 40%

PPT slides: 10%

Presentation: 40%

Evaluation of presentation of other groups: 10%