**Information Technology Unit 1 Outcome 1**

**Spreadsheet Task**

**IT Unit 1, Outcome 1 - From data to information**

**Week beginning: Monday 5th March 2012 Number of Lessons: 3**

**Outcome**: “On completion of this unit the student should be able to apply the problem-solving methodology and use appropriate software tools to create data visualisations that meet users’ needs.”

**Task Description**

U1O1 Assessment Task focuses on manipulating numeric data, using spreadsheet software, to produce information in graphic form. Examples of graphic representations are column graphs, scatter diagrams, pie charts and bubble charts.

You are required to follow the **design** and **development** stages (only) of the problem solving methodology (System Life Cycle)

**Design Brief**

**Water Watchers Association**

The Water Watchers Association of Victoria (WWA) has an interest in monitoring our water levels and promoting good stewardship of our water resources. Their prime concern is that with longer droughts and a growing population we may outstrip our available water supply. They use data which they have been collecting from the nine major catchment areas since 2001 and produce posters which keep the public informed about good water use. While the data is quite detailed there needs to be a simple way of displaying the data in order to catch the general public’s attention. ***The Water Watchers would like you to produce some graphics showing how the water levels of our different catchment areas have varied over the last ten years.***

**In particular the WWA would like you to**:

* produce a chart for each catchment area that shows how water levels have varied over the time.
* produce a chart that compares **all** catchment areas at once.
* manipulate the data table so that it reflects a percentage of the volume of each catchment
* classify each catchment percentage as “High” 100% - 70-%, “Medium” 70% - 50%, “Low” 50% - 30% and “Critical” <30%
* Use this information to produce a graphic on using water wisely.

**Overview:**

* The WWA has supplied data from the last ten years and you are to select what is needed for

manipulation.

* Decide the type of graphic representation required for each outcome and prepare a design of how the solution will be developed.
* Use spreadsheet functions to create graphics that will assist the WWA in developing poster type materials to promote proper water usage.
* Explain why the solution meets the WWA’s needs.

**Sample data**

Refer to the Water Data spreadsheet that has been provided for you.

**The task - what you need to do**

**1. Design**

* **State** what the solution needs to achieve.
* Identify **what specific data is required** and how the data will be named, structured, validated and manipulated.
* Use **design tools** such as a layout diagram which **details all parts of the spreadsheet solution**. **Annotate** your plan so that it shows all the calculations, formulas, formats and conventions.
* Plan the solution to **show how the charts and graphics will look**.
* Identify any manual and electronic **data validation** procedures that you will use to validate your data.
* Apply techniques and procedures to manage the production and handling of electronic files:
  + Files and folders are **appropriately named and stored** in a logical and consistent manner.
  + Include **author’s initials, date of production and relevant title** in the file name.
  + Ensure that file names are **unique**.
  + Use correct **file name extensions** so that the software type is apparent.
  + Store files in their **correct folders** and directories.
  + **Screen dump** your file directory after you complete this outcome task.
  + Files are stored on your student drive, and a **removable storage device** such as a USB memory stick.
  + Add the **full directory pathway** as part of the footer in any hard copy output.

**2. Development**

* Using spreadsheet software **develop a solution** from your plan. Check that it meets all requirements.
* Manipulate the data so that it **produces the graphic data that is required**. Apply formulas and functions which modifies the data.
* **Validate** to check for the reasonableness of data being input. Validation can be both manual and electronic.
* **Test** whether the solution does what it was intended to do.
  + Establish what tests will be conducted
  + determine what test data, if any, will be used
  + determine expected results
  + conduct the test
  + record the actual results
  + correct any identified errors.
* **Evaluate** how well your final solution meets the requirements.

**3. Documents required for submission**

1. Your statement of the requirements and how you will achieve these.
2. Developmental drawings of your proposed solution (including valuation) together with your plan of what the charts and graphics will look like.
3. The spreadsheet solution
4. Test plan including test results
5. Evaluation (Explanation of how the solution is suited to its purpose.)