

---

## Sample Assignment: Unit 17 Program Design, Production and Testing

---

### SAMPLE ASSIGNMENT 2

The following set of assignment tasks will allow you to cover all assessment objectives for this unit. You should look at the Assessment Evidence Grid for the unit to find out precisely what you need to demonstrate to achieve each mark band for each task. The assignment contains a Program Requirement and a set of tasks related to that requirement.

#### Program Requirement

A program is required to find average measures from a file of numbers. The file will contain up to 100 numbers between -99.99 and +99.99. The program must read the file and must show the mean, median and modal values of the data (there may be more than one mode). The program must also produce a bar chart/pictogram showing a tally of numbers in each of the following categories:

-99.99 to -50

-49.99 to 0

0.01 to 49.99

50 to 99.99

Numbers in the file must be validated. If any number is out of the given range (-99.99 to +99.99) all processing on the file will be stopped and an error message will be given.

#### Your Tasks

##### Task a

Produce a program specification to meet the given requirements. Your specification must include:

- A definition of input, processing and output requirements
- A description of how your program definition meets and/or deviates from the given requirements.

### **Task b**

Produce a program design to meet your program specification. Your design must show evidence that you have used a structured design method and must include design of:

- Inputs
- Outputs
- Processes (using appropriate process description methods)
- Data structures
- File structures and organisation.

### **Task c**

Produce a working program to realise your design. Your program must include at least one data structure (e.g. a structure to hold numbers from the file or to hold the tally for each category) and must use all data types, control structures and operators listed in the programming section of the unit specification.

Your program listing must be annotated with appropriate comments. You must submit a program listing and screen dumps to illustrate the operation of your program.

### **Task d**

Produce a test plan and a record of testing. Your plan must cover:

- All input data validation
- All user operations
- All paths through the processes.

### **Task e**

Finally, you must collect together the work produced as a result of tasks a to e into one coherent design report. Your report must contain a title page, page numbers, contents page and a bibliography.

Add to your report a review and evaluation of the whole process of design and production of this program. Your report must include:

- A review of your final program against the original program requirements commenting on its ease of use and suitability for users of differing abilities. (for this task you will want to get and record some user feedback).
- An analysis of your design method, identifying its strengths and weaknesses and referring to the ease or difficulty with which it was translated into a working program.
- A description of the problems identified as a result of testing which will require correction.
- An analysis of your performance in completing tasks a to e identifying strengths and weaknesses and suggesting ways in which you might improve your performance in future tasks.

Your review and evaluation should be well structured and you should try to ensure that it is free of errors in spelling, punctuation and grammar.

### Assessment Objectives

Tasks a to e cover assessment objectives and key skills as shown in the table below.

Task	Total marks	Assessment Objectives/Key Skills
a	8	AO1, AO2, AO3, Problem Solving Level 3
b	9	AO1, AO2, AO3, Problem Solving Level 3
c	7	AO1, AO3, Problem Solving Level 3
d	8	AO1, AO3, Problem Solving Level 3
e	18	AO2, AO4, Improving Own Learning Level 3, Communications Level 3