Sample Assignment: Unit 17 Program Design, Production and Testing

SAMPLE ASSIGNMENT 1

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 simulate a traditional dice game. During the game a player gives an instruction to roll a set of five dice. The total of all or some of the dice is then entered in a table in a position chosen by the player according to the information below:

	Player Name : XXXXXXXXXXX Turns entered so far: 99
Ones	Player selects this option to enter the total of all the ones shown on the dice.
Twos	Player selects this option to enter the total of all the twos shown on the dice.
Threes	Player selects this option to enter the total of all the threes shown on the dice.
Fours	Player selects this option to enter the total of all the fours shown on the dice.
Fives	Player selects this option to enter the total of all the fives shown on the dice.
Sixes	Player selects this option to enter the total of all the sixes shown on the dice.
Full House	Player selects this option if they have rolled three of one number and two of another. A score of 25 is entered.
Run	Player selects this option if they have rolled any four consecutive numbers and a score of 40 is entered.
All The Same	Player selects this option if they have rolled five dice showing the same number. A score of 50 is entered.
Random Sum	Player enters the sum of the dice rolled.
Total	An automatic calculation of the player's total score is shown here.

The game can be played by between one and six players and the number of players and their names are selected before the game begins. The winner is the player with the highest score after all players have had ten turns each. The winner's name and score must be shown at the end of the game, in upper case. The winner's name and score must be added to a "Hall of Fame" file, which will hold the 20 winning players with the highest scores. The updated information from the file must be shown at the end of each game, in the order of highest to lowest scores.

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 specification meets and/or deviates from the given requirements and how you have considered the user's needs.

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, modular, program to realise your design. Your program must include at least one data structure (e.g. a structure to hold details of a game or to hold the players and their scores during a game) 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