**SQIT 5013 BUSINESS PROGRAMMING USING VISUAL TOOLS**

**ASSIGMENT 3**

**QUESTION 1**

*Selection Sort –* A selection sort searches an array looking for the smallest element in the array. The smallest element is then swapped with the first element of the array. The process is repeated for the sub-array beginning with the second element in the array. Each pass of the array results in at least one more element being placed into its proper location. When the sub-array being processed contains one element, the array is sorted. Write a program to perform this algorithm.

**QUESTION 2**

**EXAM SCORE MANAGEMENT PROGRAM**

Statisticians use the concepts of mean and standard deviation to describe a collection of data. The mean is the average value of the items, and the standard deviation measures the spread or dispersal of the numbers about the mean. Formally, if  is a collection of data, then





Write a computer program to

* Request any exam scores as input and assigned them into an array
* Calculate the mean and standard deviation of the exam scores
* Display the medium of the exam scores.
* Display the three minimum and the three maximum scores
* Assign letter grades to each exam score, ES as follows:

|  |  |
| --- | --- |
| ES ≥ *m* + 1.5*s* | A |
| *m* + 0.5*s* ≤ ES < *m* + 1.5*s* | B |
| *m* − 0.5*s* ≤ ES < *m* + 0.5*s* | C |
| *m* − 1.5*s* ≤ ES < *m* − 0.5*s* | D |
| ES < *m* − 1.5*s* | F |

For instance, if *m* were 70 and *s* were 12, then grades of 88 or above would receive A’s, grades between 76 and 87 would receive B’s, and so on. This process is referred to as *curving grades*.

* Display a list of the exam scores along with their corresponding grades
* Display a list of the exam scores which are above the mean score

The input and output should be handled by subprograms or functions.