INFO 1112 Assignment 4 **Due August 4 11:59PM**

For this assignment you are going to write a C++ program using the requirements below. In this assignment you may work **individually** or in a pair. Start your program by writing your full name with your student number as a block comment /**/ (and your partner's full name and student number). Two marks will be detected from code without this comment.

Please follow these instructions:

- Use your student number (and your partner's student number) to name C++ source code. (-2 points if it is not applied)
- You can ask general questions on Q&A discussion Forum but do not share your code.
- Check the assessment section for details on the marking.
- Submit your code on Moodle. No assignment solution will be accepted by email.
- In case of cheating or plagiarism, I will follow KPU ST2 Policy.

Program Requirements

A college cafeteria manager conducted a survey to rate the quality of the food. A hundred students were asked using a scale of 1 to 10 with 1 being awful (bad) and 10 being excellent.

Write a C++ program that stores the frequency of the students' answers in an integer array. The program should summarize the frequency for each rating in a report form. There are two display options the manager can display the report tabular form or bar chart form.

Sample output of your program.

```
How would you like to display the result?
    1-  Tabular form
    2-  Bar chart
Please enter either 1 or 2. You can end the program if you enter any other number: 1
Rating          Frequency
-------         ----------
1                   12
2                   5
3                   17
4                   4
5                   15
6                   11
7                   5
8                   7
9                   11
10                  13

Number of students answers above 5 is 47%

How would you like to display the result?
    1-  Tabular form
    2-  Bar chart
Please enter either 1 or 2. You can end the program if you enter any other number: 2
Rating          Frequency
-------         ----------
1                   ***********
2                   *****
3                   ****************
4                   ****
5                   ***************
6                   **********
7                   *****
8                   *******
9                   **********
10                  ************

Number of students answers above 5 is 47%
How would you like to display the result?
    1-  Tabular form
    2-  Bar chart
Please enter either 1 or 2. You can end the program if you enter any other number: -1
```

In the above sample output, the number of students rated the quality of the food to 1 (awful) is 12, the number of students rated the quality of the food to 2 is 5, the number of students rated the quality of the food to 3 is 17, and so on.

Your program should include at least the following functions:

1- A function that returns a random number between 1 and 10.
2- A function that stores 100 random numbers as students' answers and returns an array contains the frequency of the ratings.
3- A function that accepts an array of answers and prints a table shows the frequency of the ratings.
4- A function that accepts an array of frequencies and prints a bar chart that shows the frequency of the ratings.
5- A function that accepts an array of frequencies and returns the number of students answers above 5.
6- A function that displays a menu of report options and returns user selection.
7- A main function that includes the covers the assignment requirements.

Assessment

Your program should be free of errors. This assignment is out of 100.

- Using meaningful variable names. (5 points)
- Adding enough comments to understand the program. (5 points)
- Using indentation and spaces properly. (5 points)
- A function that returns a random number between 1 and 10. (5 points)
- A function that stores 100 random numbers as students' answers and returns an array contains the frequency of the ratings. (15 points)
- A function that accepts an array of answers and prints a table shows the frequency of the ratings using manipulators. (15 points)
- A function that accepts an array of frequencies and prints a bar chart that shows the frequency of the ratings using manipulators (15 points)
- A function that accepts an array of frequencies and returns the number of students answers above 5. (10 points)
- A function that displays a menu of report options and returns user selection. (5 points)
- A main function that calls the above functions to cover all the assignment requirements. (20
- points)