Part A

1.

```
D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>g++ lab3a1.cpp

D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>a.exe
Enter value 1: 2
Enter value 2: 2
Value already in the list! Please choose other value!
Enter value 2: 3
Enter value 3: 4
Enter value 4: 5
Enter value 5: 6
Enter value 6: 7
Enter value 7: 8
Enter value 8: 9
Enter value 9: 10
Enter value 10: 11
2, 3, 4, 5, 6, 7, 8, 9, 10, 11
```

2.

A)

```
D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>g++ lab3a2partA.cpp

D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>a.exe
Linear Search: Found 9 at index 7
Execution time (linear): 0 ns
```

B)

```
D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>g++ lab3a2partB.cpp

D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>a.exe
Binary Search: Found 9 at index 8 (sorted array)
Execution time (binary): 0 ns
```

3.

A)

```
D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>g++ lab3a3partA.cpp

D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>a.exe
Sorted using Bubble Sort: 1 2 3 4 5
Execution time (Bubble Sort): 0 ns
```

B)

```
D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>g++ lab3a3partB.cpp

D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>a.exe
Sorted using Insertion Sort: 1 2 3 4 5
Execution time (Insertion Sort): 0 ns
```

Part B

1.

```
D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>g++ lab3b1.cpp

D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>a.exe
Student Name      Student TP  Quiz      Midterm   Final     Total Score   Grade
------------------------------------------------------------------------
Tan Chi Yong      TP001234    14.0      44.0      13.5      71.5          B
Lim Jie Jing      TP001235    17.6      33.0      21.0      71.6          B
Jason Leong       TP001236    9.0       27.5      19.8      56.3          C
Monday Johnny     TP001237    4.4       33.0      10.2      47.6          F
Holiday James     TP001238    11.0      44.0      28.2      83.2          B

Highest scoring student: Holiday James (83.2)
Lowest scoring student : Monday Johnny (47.6)
Total students scoring A or B: 2
```

2.

```
D:\C++ FOLDER\ChristoferRustandi_TP071535\Lab 3>a.exe
Enter how many random numbers you want to do an analysis? 100

The random numbers (between 1 - 50) as below:
7       21      11      24      35      12      6       29      28      22
39      47      24      4       23      22      9       34      13      36
16      46      32      40      43      23      35      11      34      7
50      42      24      22      4       25      47      28      31      5
19      40      24      44      16      32      48      9       36      32
8       48      32      8       8       3       47      24      19      41
33      13      1       3       8       27      9       1       26      17
13      15      35      40      33      26      25      16      17      18
46      1       33      9       41      13      20      4       43      18
28      36      40      41      6       35      43      30      23      7


The analysis star design as below:
------------------------------------------------------
 1 - 10 | * * * * * * * * * * * * * * * * * * * *
11 - 20 | * * * * * * * * * * * * * * * * * *
21 - 30 | * * * * * * * * * * * * * * * * * * * * * *
31 - 40 | * * * * * * * * * * * * * * * * * * * * * *
41 - 50 | * * * * * * * * * * * * * * * * *
------------------------------------------------------

To verify the graph is correct (numbers from 41 - 50):
47      46      43      50      42      47      44      48      48      47      41      46      41      43      41      43
```