Lab 1 – Basic C Programming and Control Flow

Note: You are required to submit your lab code as part of assignment submission for grading via APAS.

1. Write a C program that prints the ID and grade of each student in a class. The input contains the student IDs and their marks. The range of the marks is from 0 to 100. The relationships of the marks and grades are given below:

Grade	Mark
A	100-75
B	74-65
C	64-55
D	54-45
F	44-0

Use the sentinel value –1 for student ID to indicate the end of user input.

A sample program template is given below.

```
#include <stdio.h>
int main()
{
  /* Write your code here */

  return 0;
}
```

Sample input and output sessions are given below:

(1) Test Case 1:

```
Enter Student ID:
11
Enter Mark:
56
Grade = C
Enter Student ID:
21
Enter Mark:
89
Grade = A
Enter Student ID:
31
Enter Mark:
34
Grade = F
Enter Student ID:
-1
```

(2) Test Case 2:

```
Enter Student ID:
```

```
11
Enter Mark:
75
Grade = A
Enter Student ID:
21
Enter Mark:
65
Grade = B
Enter Student ID:
31
Enter Mark:
55
Grade = C
Enter Student ID:
32
Enter Mark:
45
Grade = D
Enter Student ID:
-1
```

(3) Test Case 2:

```
Enter Student ID:
-1
```

2. Write a C program that reads in several lines of non-negative integer numbers, computes the average for each line and prints out the average. The value –1 in each line of user input is used to indicate the end of input for that line.

   A sample program template is given below.

```
#include <stdio.h>
int main()
{
  /* Write your code here */

  return 0;
}
```

   Sample input and output sessions are given below:

   (1) Test Case 1:

```
Enter number of lines:
1
Enter line 1 (end with -1):
1 2 3 4 -1
Average = 2.50
```

   (2) Test Case 2:

```
Enter number of lines:
```

2
Enter line 1 (end with -1):
2 4 6 8 -1
Average = 5.00
Enter line 2 (end with -1):
1 3 5 7 9 -1
Average = 5.00

(3) Test Case 3:
Enter number of lines:
3
Enter line 1 (end with -1):
2 4 6 8 -1
Average = 5.00
Enter line 2 (end with -1):
1 3 5 7 9 -1
Average = 5.00
Enter line 3 (end with -1):
1 3 5 7 9 11 -1
Average = 6.00