

Faculty of Computing

Year 1 Semester 1 (2024)

IT1120 – Introduction to Programming

Lab Sheet 07

Question 1 (Tutorial 6 – Q1)

- a) Write a Java program to display the grade of a student.

The user should enter marks for four subjects and find the average. The overall grade (based on average) is assigned as follows:

Marks	Grade
100 - 75	Distinction
74 - 50	Credit
49 - 0	Fail

Save the file inside ‘Lab 7’ folder as: **ITxxxxxxxxxLab7Q1A.java**

Replace ‘ITxx xxx xxx’ of the filename, with your own Student ID.

Expected Output:

```
Microsoft Windows [Version 10.0.19045.4598]
(c) Microsoft Corporation. All rights reserved.

C:\Users\vidan\Desktop\Lab 7>javac ITxxxxxxxxxLab7Q1A.java

C:\Users\vidan\Desktop\Lab 7>java ITxxxxxxxxxLab7Q1A
Enter marks for four subjects:
Enter Subject Mark 1: 50
Enter Subject Mark 2: 55
Enter Subject Mark 3: 67
Enter Subject Mark 4: 60

Average is : 58.0
Overall Grade is : Credit
```

- b) Modify your program to get four subjects inputs in a single line (separated by space) and display the grades for three (3) students.

Save the file inside ‘**Lab 7**’ folder as: **ITxxxxxxxxxLab7Q1B.java**

Replace ‘ITxx xxx xxx’ of the filename, with your own Student ID.

Expected Output:

```
Microsoft Windows [Version 10.0.19045.4598]
(c) Microsoft Corporation. All rights reserved.

C:\Users\vidan\Desktop\Lab 7>javac ITxxxxxxxxxLab7Q1B.java

C:\Users\vidan\Desktop\Lab 7>java ITxxxxxxxxxLab7Q1B
Student 1
Enter marks: 50 55 67 60
Average is : 58.0
Overall Grade is : Credit

Student 2
Enter marks: 80 75 77 79
Average is : 77.75
Overall Grade is : Distinction

Student 3
Enter marks: 32 45 48 12
Average is : 34.25
Overall Grade is : Fail
```

Question 2 (Tutorial 6 – Q2)

- a) Write a java program to display the below figure.

```
$ $ $ $ $  
$ $ $ $ $  
$ $ $ $ $  
$ $ $ $ $
```

Save the file inside ‘Lab 7’ folder as: **ITxxxxxxxxxLab7Q2A.java**

Replace ‘ITxx xxx xxx’ of the filename, with your own Student ID.

Expected Output:

```
Microsoft Windows [Version 10.0.19045.4598]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\vidan\Desktop\Lab 7>javac ITxxxxxxxxxLab7Q2A.java  
  
C:\Users\vidan\Desktop\Lab 7>java ITxxxxxxxxxLab7Q2A  
$ $ $ $ $  
$ $ $ $ $  
$ $ $ $ $  
$ $ $ $ $
```

- b) Write a Java program to display numbers from 1 – 5 and display the stars as shown below.

```
1 - *  
2 - * *  
3 - * * *  
4 - * * * *  
5 - * * * * *
```

Save the file inside ‘Lab 7’ folder as: **ITxxxxxxxxxLab7Q2B.java**

Replace ‘ITxx xxx xxx’ of the filename, with your own Student ID.

Expected Output:

```
Microsoft Windows [Version 10.0.19045.4598]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\vidan\Desktop\Lab 7>javac ITxxxxxxxxxLab7Q2B.java  
  
C:\Users\vidan\Desktop\Lab 7>java ITxxxxxxxxxLab7Q2B  
1 - *  
2 - * *  
3 - * * *  
4 - * * * *  
5 - * * * * *
```

- c) Write a Java program to display below pattern.

55555
4444
333
22
1

Save the file inside ‘**Lab 7**’ folder as: **ITxxxxxxxxxLab7Q2C.java**

Replace ‘ITxx xxx xxx’ of the filename, with your own Student ID.

Expected Output:

```
Microsoft Windows [Version 10.0.19045.4598]
(c) Microsoft Corporation. All rights reserved.

C:\Users\vidan\Desktop\Lab 7>javac ITxxxxxxxxxLab7Q2C.java

C:\Users\vidan\Desktop\Lab 7>java ITxxxxxxxxxLab7Q2C
55555
4444
333
22
1
```

Question 3 (Tutorial 6 – Q3)

SunSet supermarket has decided to give a 5% discount to the total bill amount during the festive season. A discount is given only to the customers who pay the bill in cash.

Write a Java program to enter the total bill amount of 5 customers from the keyboard and calculate the discount and the amount to be paid.

The program should ask the user to enter the mode of payment. The mode of payment can be either cash (C or c) or other (O or o). Allow the user to enter only ‘C’ and ‘O’ (both capital or simple) and display error message ‘**Payment Mode is Not Valid**’ for any other mode of payment.

Save the file inside ‘**Lab 7**’ folder as: **ITxxxxxxxxxLab7Q3.java**

Replace ‘ITxx xxx xxx’ of the filename, with your own Student ID.

Expected Output:

```
Microsoft Windows [Version 10.0.19045.4598]
(c) Microsoft Corporation. All rights reserved.

C:\Users\vidan\Desktop\Lab 7>javac ITxxxxxxxxxLab7Q3.java

C:\Users\vidan\Desktop\Lab 7>java ITxxxxxxxxxLab7Q3
Customer 1
Enter total bill amount: 1575
Enter mode of payment (C for cash, O for other): C
Discount is : 78.75
Amount to be paid: 1496.25

Customer 2
Enter total bill amount: 1575
Enter mode of payment (C for cash, O for other): O
No discount applicable
Amount to be paid: 1575.0
```

Accepts Capital Letter
C or O

Payment Mode
Validation

```
Customer 3
Enter total bill amount: 2845
Enter mode of payment (C for cash, O for other): T
Payment Mode is Not Valid

Customer 4
Enter total bill amount: 7136
Enter mode of payment (C for cash, O for other): c
Discount is : 356.8
Amount to be paid: 6779.2

Customer 5
Enter total bill amount: 7136
Enter mode of payment (C for cash, O for other): o
No discount applicable
Amount to be paid: 7136.0
```

Accepts Simple Letter
c or o

