

| King Saud University<br>College of Computer and Information Sciences<br>Computer Science Department |                             |
|---|-----------------------------|
| CSC 111<br>Introduction to Programming with Java  | First Semester<br>1440-1441 |

## First Java Sheet

### Exercise One:

The program's code:

```

1 /*Exercise one, a program that calculates and prints
2 the number of minutes in a year */
3
4 public class sheet_one_one
5 {
6     public static void main (String[] args)
7     {
8         int year = 365;
9         // 365 days are in a year
10        final int days = 24;
11        // 24 hours are in a day
12        final int minutes = 60;
13        // 60 minutes are in an hour
14        int minutes_in_year = year*days*minutes;
15        System.out.println("there are " + minutes_in_year + " minutes in a year!");
16    }
17 }

```

The output:

```

----jGRASP wedge2: pid for process is 9580.
there are 525600 minutes in a year!

----jGRASP wedge2: exit code for process is 0.
----jGRASP: operation complete.

```

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### Exercise Two:

An algorithm for a program that prints the BMI index of a person who has a weight of 55 and a height of 1.6:

1. Start the program
2. Read the first variable and save it as weight with the value of 55
3. Read the second variable and save it as height with the value of 1.6
4. Divide weight over height squared and save it as a variable BMI.

$$\text{BMI} = \text{weight} / (\text{height} * \text{height})$$

5. Print BMI
6. End the program

The code of the program:

```

1 //Exercise two, BMI index
2
3 public class sheet_one_two
4 {
5     public static void main (String[] args)
6     {
7         double weight = 55;
8         double height = 1.6;
9         // height is in meters and weight is in kilograms
10        double BMI = weight/(height*height);
11        // to take the square of height it has to be multiplied by itself
12        System.out.println("the BMI of a person having a weight of 55kg and a height of 160cm
is " + BMI + "kg/m^2");
13    }
14 }
```

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The output:

```

----jGRASP wedge2: pid for process is 15768.
the BMI of a person having a weight of 55kg and a height of 160cm is 21.484374999999996kg/m^2

----jGRASP wedge2: exit code for process is 0.
----jGRASP: operation complete.

```

Exercise Three:

The program's code:

```

1 //Exercise three, a program that prints absolute value
2
3 public class sheet_one_three
4 {
5     public static void main (String[] args)
6     {
7         int num = -2;
8         int abs = (num)*-1;
9         /* the absolute value of a positive number is itself, however the absolute
10        value of a negative number is the number multiplied by -1 */
11         System.out.println( "the absolute value of " + num + " is " + abs);
12     }
13 }

```

The output:

```

----jGRASP wedge2: pid for process is 7724.
the absolute value of -2 is 2

----jGRASP wedge2: exit code for process is 0.
----jGRASP: operation complete.

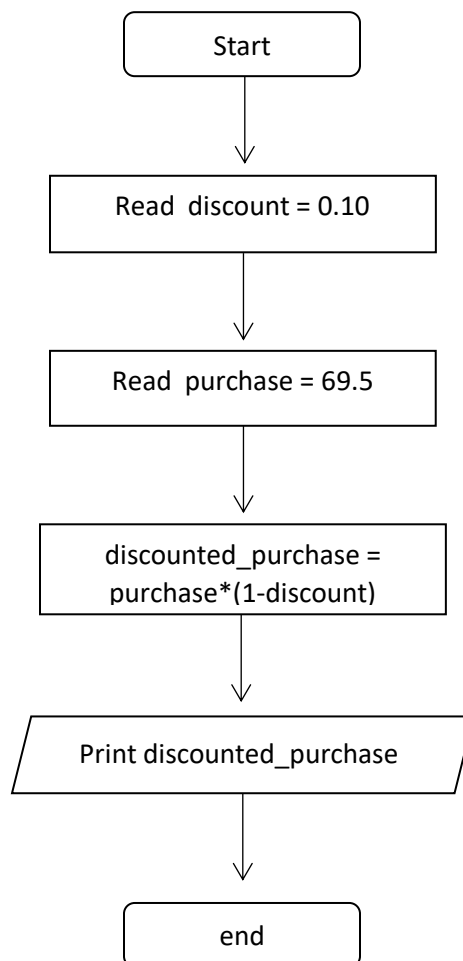
```

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### Exercise Four:

A flowchart for a program that displays the discounted price:



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The program code:

```

1 // Exercise four, 10% discount
2 public class sheet_one_four
3 {
4     public static void main (String[] args)
5     {
6         double discount = 0.1;
7         double purchase = 69.5;
8         /*price after discount would be the purchase -(0.1*purchase)
9         an easier way of doing so is to multiply the purchase by 0.9 */
10        double discounted_purchase = purchase*(1 - discount);
11        System.out.println("the final price after a 10 percent discount is " + discounted_purchase);
12    }
13 }

```

The output:

```

---jGRASP wedge2: pid for process is 4368.
the final price after a 10 percent discount is 62.550000000000004

---jGRASP wedge2: exit code for process is 0.
---jGRASP: operation complete.

```