# Assignment 4 Solution

## Questions with Answers:

1. WAP using multiple if-else to input a character and check whether it is alphabet, digit or a special character.*[Hint: Use ASCII Codes Table]*

**Ans:**

```
import java.util.*;
class character
{
   public static void main(String args[])
   {
    char ch;
    int pos=0;
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter Character");
    ch = sc.next().charAt(0);
    if(ch>=97&&ch<=122 || ch>=65 && ch<=90)
    {
       System.out.println("It is a alphabet");
   }
   else if(ch>=48 && ch<=57)
   {
      System.out.println("It is a digit");
   }
   else
   {
      System.out.println("It is a special Character");
   }
}
}
```

**2.** WAP using nested if-else to input the type & price of watch purchased, and calculate the discount according the given table and print the final price to be paid by the customer.

| Price/Type of Watch | Fastrack | Titan |
|---|---|---|
| Upto 5,000 | 10% | 12% |
| Upto 20,000 | 15% | 18% |
| More than that | 20%+300 | 18%+500 |

**Ans:**

```
import java.util.*;
class watch {
   public static void main(String Args[])    {
      char type;
      double price,amount;
      double discount= 0.0;
      Scanner sc= new Scanner(System.in);
      System.out.println("Enter the type as F or T and price
of the computer");
      type= sc.next().charAt(0);
      price= sc.nextDouble();
      if(price<=5000)  {
         if(type=='F'||type=='f')
            discount= 0.10*price;
         else if(type=='T'||type=='t')
            discount= 0.12*price;
         else
            System.out.println("Invalid Choice");
      }
      else if(price>5000 && price <=20000)
      {
         if(type=='F'||type=='f')
           discount= 0.15*price;
         else if(type=='T'||type=='t')
            discount= 0.18*price;
         else
            System.out.println("Invalid Choice");
      }
      else
      {
        if(type=='F'||type=='f')
         {
            discount= (0.20*price)+300;
         }
         else if(type=='T'||type=='t')
         {
            discount= (0.18*price)+500;
         }
         else
         {
            System.out.println("Invalid Choice");
         }
      }
      if(discount>0.0){
      amount= price - discount;

      System.out.println("The amount of your watch is:
"+amount);
   }
   }
}
```

**3.** WAP using nested if-else to input the type , floor of the room & number of days for room booked, and print the total bill using the given table.

| Floor/Type | AC | Non-AC |
|---|---|---|
| 0 | 2000Rs/day | 1600Rs/day |
| 1 | 1600Rs/day | 1350Rs/day |
| 2 | 1200Rs/day | 900Rs/day |

**Ans:**

```
import java.util.*;
class hotel
{
   public static void main(String Args[])
   {
     int floor, days,price=0;
     char type;
      Scanner sc= new Scanner(System.in);
      System.out.println("Enter the type of the room A or N , floor number and number of days");
      type = sc.next().charAt(0);
      floor = sc.nextInt();
      days= sc.nextInt();
      if(floor==0)
      {
         if(type=='A'|| type=='a')
            price = days*2000;
         else if(type=='N'|| type=='n')
            price = days*1600;
         else
           System.out.println("Invalid Choice");
      }
      else if(floor==1)
      {
          if(type=='A'||type=='a')
            price = 1600*days;
          else if(type=='N'||type=='n')
            price = 1350*days;
         else
            System.out.println("Invalid Choice");
      }
      else if(floor==2)
      {
         if(type=='A'||type=='a')
           price = 1200*days;
          else if(type=='N'||type=='n')
            price = 900*days;
         else
            System.out.println("Invalid Choice");
      }
      else{
         System.out.println("Wrong Floor number");
      }
      if(price>0)
      System.out.println("The total bill is: "+price); }
   }
```

4. What are the differences between Multiple If-Else and Switch Case?

**Ans**

| **Multiple If-Else** | **Switch Case** |
|---|---|
| • **It can work with all relational operators.** | • **It is used to test the equality.** |
| • **It can handle ranges.** | • **It cannot handle ranges.** |
| • **It will work with variable as well as constant.** | • **Case must be constant.** |
| • **It can handle floating point.** | • **It cannot handle floating point.** |
| • **It can work with expression** | • **It cannot work with expression.** |
| • **It gives low performance.** | • **It gives high performance.** |
| • **It takes more time to execute as compared to switch case.** | • **It takes less time than if-else.** |

5. Write a menu driven program using **Switch** to display the menu to the user and ask his/her choice. Depending on the user choice print the area, perimeter or diagonal of the rectangle taking length and breadth of the rectangle as an input.
   1. - Area of Rectangle
   2. - Perimeter of Rectangle
   3. - Diagonal of Rectangle

**Ans:**

```
import java.util.*;
class rectangle
{
   public static void main(String Args[])
   {
    int l,b,ch;
    double result;
    Scanner sc = new Scanner(System.in);
    System.out.println("1. Area");
    System.out.println("2. Perimeter");
    System.out.println("3. Diagonal");
    System.out.println("Enter Choice");
    ch = sc.nextInt();
    System.out.println("Enter length and breadth");
    l = sc.nextInt();
    b = sc.nextInt();
    switch(ch){
       case 1: result= l*b;
       break;
       case 2: result = 2*(l+b);
       break;
       case 3: result = Math.sqrt(l*l+b*b);
       break;
       default: result= 0;
       System.out.println("Invalid Choice");
    }
     if(result>0)
    {
    System.out.println("Your result is"+ result);
    }
   }
}
```