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Subject   Modern Programming Language
Semester   BSCS 7A
Assignment No   02

```java
// Q.1: (Palindromes)  A  palindrome  is  a  sequence  of  characters  that  reads  the
// same backward as forward. For example, each of the following five-digit integers
// is a palindrome: 12321, 55555, 45554 and 11611. Write an application that reads
// in a five-digit integer and determines whether it's a palindrome. If the number is
// not five digits long, display an error message and allow the user to enter a new
// value.

import java.util.Scanner;
public class Palindromes
{
    private int num;
    private int check =0;
    private int temp,rem;

    public void setNum(int num)
    {
      while(String.valueOf(num).length()<5)
      {
          System.out.println("Try again , Please Enter a number 5 digits long: ");
          Scanner input = new Scanner(System.in);
          num = input.nextInt();
      }
          this.num = num;
    }

    public void checkNum()
    {
  temp = num;
   while(num>0){
    rem=num%10;
    check=(check*10)+rem;
    num=num/10;
   }
   num =temp;
   if(num == check)
   {
     System.out.println("Number is Palindrome");
   }
   else
   {
     System.out.println("Number is not a Palindrome ");
   }
    }


    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int a;
        System.out.print("Please Enter a 5 digit long number: ");
        a = sc.nextInt();
        Palindromes pd = new Palindromes();
        pd.setNum(a);
        pd.checkNum();
    }
}
```

```
PS D:\University\Java\Assignment02> javac .\Palindromes.java
PS D:\University\Java\Assignment02> java Palindromes
Please Enter a 5 digit long number: 12345
12345
PS D:\University\Java\Assignment02> javac .\Palindromes.java
PS D:\University\Java\Assignment02> java Palindromes
Please Enter a 5 digit long number: 6784
Try again , Please Enter a number 5 digits long:
12345
Number is not a Palindrome
PS D:\University\Java\Assignment02> java Palindromes
Please Enter a 5 digit long number: 11111
Number is Palindrome
PS D:\University\Java\Assignment02> 
```

```java
// Q.2: (Salary Calculator) Develop a Java application that determines the gross
// pay for each of three employees. The company pays straight time for the first 40
// hours worked by each employee and time and a half for all hours worked in excess of  40
// You're given a list of the employees, their number of hours worked last
// week and their hourly rates. Your program should input this information for each
// employee, then determine and display the employee's gross pay. Use class
// Scanner to input the data

import java.util.Scanner;

public class SalaryCalculator
{
    private int hours=0, rate=0, salary=0, temp=0;

    public void setHours(int hours)
    {
        if(hours>0)
        {
            this.hours = hours;
        }

    }
    public void setRate(int rate)
    {
        if(rate>0)
        {
            this.rate = rate;
        }

    }

    public void calculateSalary()
    {
        if(hours<=40)
        {
            salary = rate * hours;
        }
        else
        {
            temp = rate * 40;
            hours -=40;
            salary = temp + (hours * rate);
        }
        System.out.println("Your salary is " + salary );
    }

    public static void main(String args[])
    {
        int rate[] = new int[3];
        int hour[] = new int[3];
        SalaryCalculator sc1  =  new SalaryCalculator();
        SalaryCalculator sc2  =  new SalaryCalculator();
        SalaryCalculator sc3  =  new SalaryCalculator();
        Scanner input = new Scanner(System.in);
        System.out.print("Please Enter Employee hourly rate: ");
        sc1.setRate(input.nextInt());
        System.out.print("Please Enter Hours Employee worked : ");
        sc1.setHours(input.nextInt());
        sc1.calculateSalary();

        System.out.print("Please Enter Employee hourly rate: ");
        sc2.setRate(input.nextInt());
        System.out.print("Please Enter Hours Employee worked : ");
        sc2.setHours(input.nextInt());
        sc2.calculateSalary();

        System.out.print("Please Enter Employee hourly rate: ");
        sc3.setRate(input.nextInt());
        System.out.print("Please Enter Hours Employee worked : ");
        sc3.setHours(input.nextInt());
        sc3.calculateSalary();
    }
}
```

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   JUPYTER

PS D:\University\Java\Assignment02> javac .\SalaryCalculator.java
PS D:\University\Java\Assignment02> java SalaryCalculator
Please Enter Employee hourly rate: 9
Please Enter Hours Employee worked : 12
Your salary is 108
Please Enter Employee hourly rate: 10
Please Enter Hours Employee worked : 10
Your salary is 100
Please Enter Employee hourly rate: 10
Please Enter Hours Employee worked : 100
Your salary is 1000
PS D:\University\Java\Assignment02>
```

```java
 1  // Q.3: The replace() method searches a string for a specified character, and returns
 2  // a new string where the specified character(s) are replaced. The synntax of the
 3  // replace method is as under
 4  // Syntax
 5  // public String replace(char searchChar, char newChar)
 6  // Now make a java program and use the replace function. Take a string " Waheed"
 7  // and replace the characters "W and D" with "N"
 8
 9  public class Search
10  {
11      String word;
12
13      public Search( String word)
14      {
15          this.word= word.toUpperCase();
16      }
17      public String replace(char searchChar, char newChar)
18      {
19          word = word.replace(searchChar,newChar);
20          System.out.println(searchChar + " is replaced with " + newChar);
21          System.out.print("New String is: ");
22          return word;
23      }
24
25      public static void main(String args[])
26      {
27          Search s = new Search("Waheed");
28          System.out.println(s.replace('W','N'));
29          System.out.println(s.replace('D','N'));
30      }
31  }
32
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   **TERMINAL**   JUPYTER

```
PS E:\University\Java\Assignment02> java Search
W is replaced with N
New String is: NAHEED
D is replaced with N
New String is: NAHEEN
PS E:\University\Java\Assignment02> []
```