Assignment

1) import java.io.*;

```
public class Main
  {
  public static void main(String[] args)throws IOException
    {
      BufferedReader br=new BufferedReader (new InputStreamReader(System.in));
      System.out.println("Author:M.Sunayana\nSAP ID:51834790");
      System.out.print("Enter a number : ");
      int n = Integer.parseInt(br.readLine());
      int copy = n, a = 0, sum = 0;
      String b = Integer.toString(n);
      int len = b.length();

      while(copy>0)
      {
        a = copy % 10;
        sum = sum + (int)Math.pow(a,len);
        len--;
        copy = copy / 10;
      }

      if(sum == n)
        System.out.println(n+" is a Disarium Number.");
      else
```

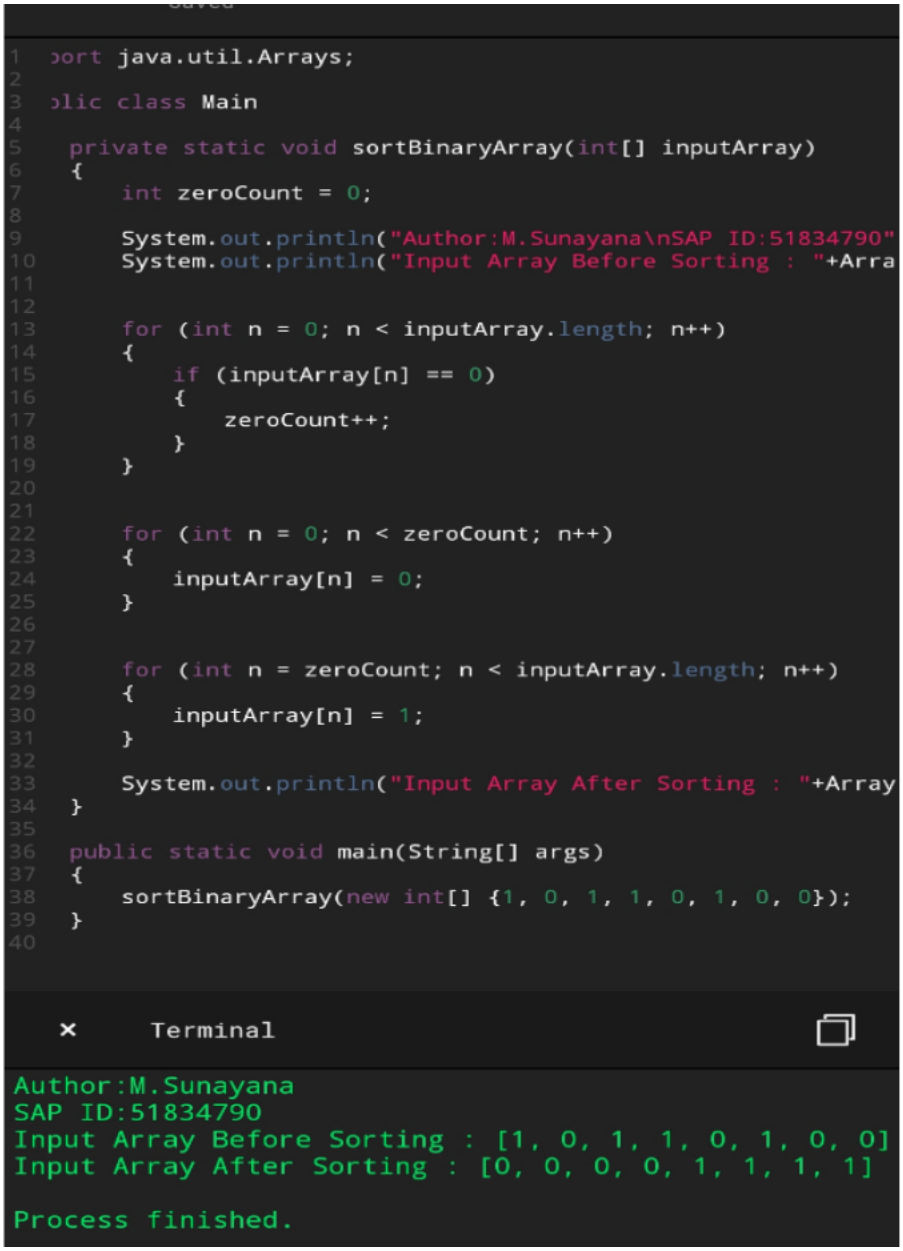
```
            System.out.println(n+" is not a Disarium Number.");
        }
    }
```

2) import java.util.Arrays;

public class Main

```
{
	private static void sortBinaryArray(int[] inputArray)
	{
		int zeroCount = 0;

		System.out.println("Author:M.Sunayana\nSAP ID:51834790");
		System.out.println("Input Array Before Sorting : "+Arrays.toString(inputArray));


		for (int n = 0; n < inputArray.length; n++)
		{
			if (inputArray[n] == 0)
			{
				zeroCount++;
			}
		}


		for (int n = 0; n < zeroCount; n++)
		{
			inputArray[n] = 0;
		}


		for (int n = zeroCount; n < inputArray.length; n++)
```

```
                {
                        inputArray[n] = 1;
                }

                System.out.println("Input Array After Sorting : "+Arrays.toString(inputArray));
        }

        public static void main(String[] args)
        {
                sortBinaryArray(new int[] {1, 0, 1, 1, 0, 1, 0, 0});
        }
}
```



```
port java.util.Arrays;

olic class Main

  private static void sortBinaryArray(int[] inputArray)
  {
      int zeroCount = 0;

      System.out.println("Author:M.Sunayana\nSAP ID:51834790"
      System.out.println("Input Array Before Sorting : "+Arra


      for (int n = 0; n < inputArray.length; n++)
      {
          if (inputArray[n] == 0)
          {
              zeroCount++;
          }
      }


      for (int n = 0; n < zeroCount; n++)
      {
          inputArray[n] = 0;
      }


      for (int n = zeroCount; n < inputArray.length; n++)
      {
          inputArray[n] = 1;
      }

      System.out.println("Input Array After Sorting : "+Array
  }

  public static void main(String[] args)
  {
      sortBinaryArray(new int[] {1, 0, 1, 1, 0, 1, 0, 0});
  }

```

```
Terminal
Author:M.Sunayana
SAP ID:51834790
Input Array Before Sorting : [1, 0, 1, 1, 0, 1, 0, 0]
Input Array After Sorting : [0, 0, 0, 0, 1, 1, 1, 1]

Process finished.
```

3) public class Main

{

static int replaceDigit(int a, int numbertobereplaced,

int replacingnumber)

{

int result = 0, multiply = 1;

```
        while (a % 10 > 0)
        {

                int remainder = a % 10;


                if (remainder == numbertobereplaced)
                        result = result + replacingnumber * multiply;


                else
                        result = result + remainder * multiply;


                multiply *= 10;
                a = a / 10;
        }
        return result;
}

public static void main(String[] args)
{
        int a = 645, numbertobereplaced = 6, replacingnumber = 5;
        System.out.println("Author:M.Sunayana\nSAP ID:51834790");
        System.out.println(replaceDigit(a, numbertobereplaced, replacingnumber));
}
}
```

```java
public class Main
{
static int replaceDigit(int a, int numbertobereplaced,
                        int replacingnumber)
{
    int result = 0, multiply = 1;

    while (a % 10 > 0)
    {

        int remainder = a % 10;

        if (remainder == numbertobereplaced)
            result = result + replacingnumber * multiply;

        else
            result = result + remainder * multiply;

        multiply *= 10;
        a = a / 10;
    }
    return result;
}

public static void main(String[] args)
{
    int a = 645, numbertobereplaced = 6, replacingnumber = 5
    System.out.println("Author:M.Sunayana\nSAP ID:51834790")
    System.out.println(replaceDigit(a, numbertobereplaced, r
}
}
```

```
Terminal
Author:M.Sunayana
SAP ID:51834790
545

Process finished.
```

5) public class Main

{

public static int binarySearch(int[] M, int left, int right, int n)

{

if (left > right) {

```
            return -1;
        }


        int mid = (left + right) / 2;

        if (n == M[mid]) {
            return mid;
        }

        else if (n < M[mid]) {
            return binarySearch(M, left, mid - 1, n);
        }

        else {
            return binarySearch(M, mid + 1, right, n);
        }
}

public static void main(String[] args)
{
        int[] M = { 2, 5, 6, 8, 9, 10 };
        int key = 3;

        int left = 0;
```

```
        int right = M.length - 1;

        int index = binarySearch(M, left, right, key);

        System.out.println("Author:M.Sunayana\nSAP ID: 51834790");
        if (index != -1) {
            System.out.println("Element found at index " + index);
        } else {
            System.out.println("Element not found in the array");
        }
    }
}
```

Saved

```java
lic class Main

 public static int binarySearch(int[] M, int left, int right,
 {
     if (left > right) {
         return -1;
     }


     int mid = (left + right) / 2;

     if (n == M[mid]) {
         return mid;
     }

     else if (n < M[mid]) {
         return binarySearch(M, left, mid - 1, n);
     }

     else {
         return binarySearch(M, mid + 1, right, n);
     }
 }

 public static void main(String[] args)
 {
     int[] M = { 2, 5, 6, 8, 9, 10 };
     int key = 3;

     int left = 0;
     int right = M.length - 1;

     int index = binarySearch(M, left, right, key);

     System.out.println("Author:M.Sunayana\nSAP ID: 51834790"
     if (index != -1) {
         System.out.println("Element found at index " + index
     } else {
         System.out.println("Element not found in the array")
     }
 }
```

× Terminal

```
Author:M.Sunayana
SAP ID: 51834790
Element not found in the array

Process finished.
```