19BIT0093 - Subham Subhasish Panda

ASSIGNMENT 1

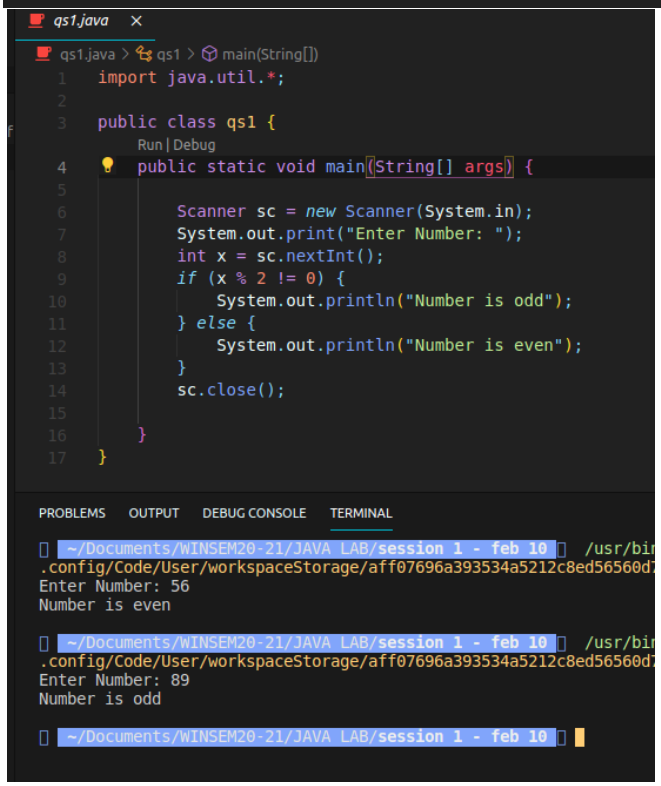
Question 1:

```java
import java.util.*;

public class qs1 {
   public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.print("Enter Number: ");
        int x = sc.nextInt();
        if (x % 2 != 0) {
            System.out.println("Number is odd");
        } else {
            System.out.println("Number is even");
        }
        sc.close();

    }
}
```



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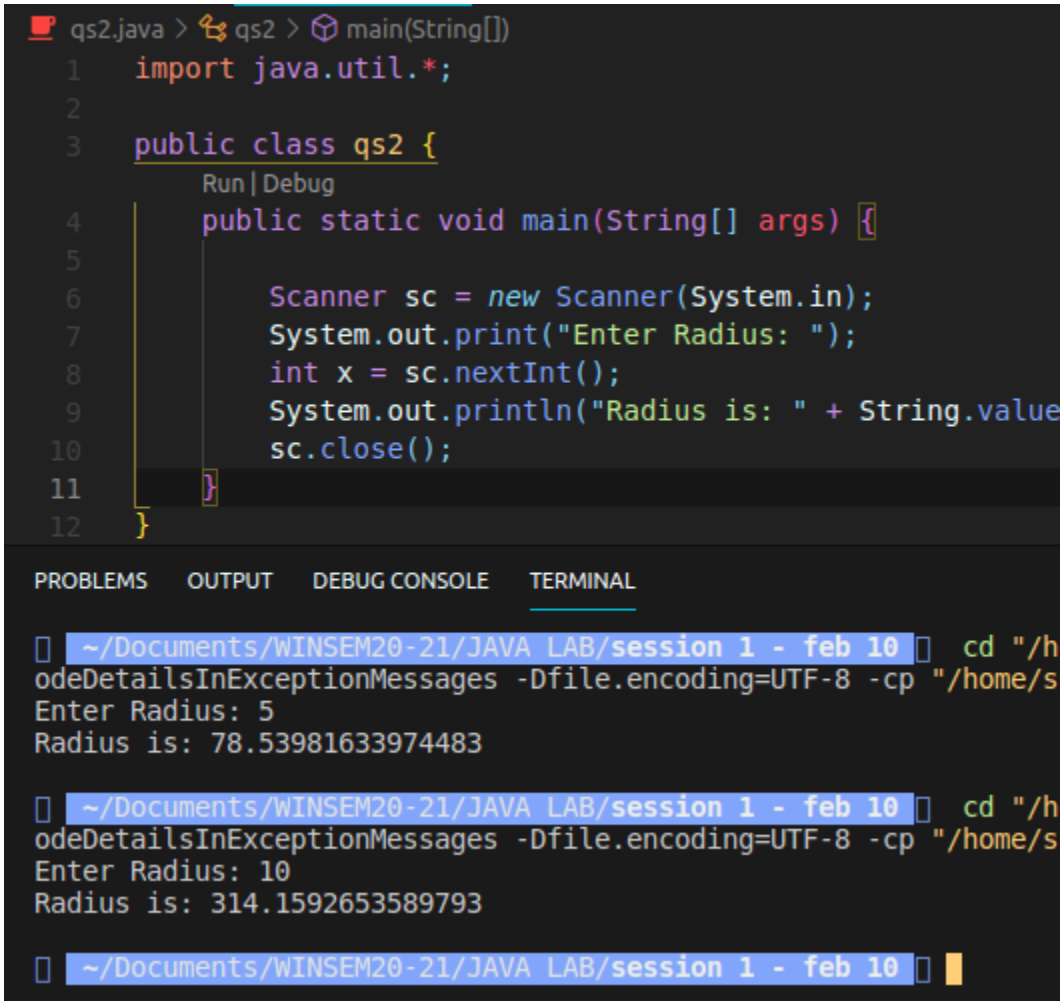
Question 2:

```java
import java.util.*;

public class qs2 {
   public static void main(String[] args) {

       Scanner sc = new Scanner(System.in);
       System.out.print("Enter Radius: ");
       int x = sc.nextInt();
       System.out.println("Radius is: " + String.valueOf(Math.PI * x *
x));
       sc.close();
   }
}
```



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Question 3:

```
import java.util.*;

public class qs3 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       System.out.print("Enter Year: ");
       int year = sc.nextInt();
       boolean leap = false;
       if (year % 4 == 0) {
           if (year % 100 == 0) {
               if (year % 400 == 0)
                   leap = true;
               else
                   leap = false;
           } else
               leap = true;
       } else
           leap = false;
       if (leap)
           System.out.println(year + " is a leap year.");
       else
           System.out.println(year + " is not a leap year.");
       sc.close();
   }
}
```

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qs3.java > qs3 > main(String[])

```java
import java.util.*;

public class qs3 {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter Year: ");
        int year = sc.nextInt();
        boolean leap = false;
        if (year % 4 == 0) {
            if (year % 100 == 0) {
                if (year % 400 == 0)
                    leap = true;
                else
                    leap = false;
            } else
                leap = true;
        } else
            leap = false;
        if (leap)
            System.out.println(year + " is a leap year.")
        else
            System.out.println(year + " is not a leap yea
        sc.close();
    }
}
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10  cd "/home
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home/subh
Enter Year: 2005
2005 is not a leap year.

 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10  cd "/home
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home/subh
Enter Year: 2004
2004 is a leap year.

 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10
```

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Question 4:

```java
import java.util.*;

public class qs4 {
   public static void main(String[] args) {
       Scanner sc=new Scanner(System.in);
       System.out.print("Enter room number: ");
       int number=sc.nextInt();
       switch (number) {
       case 823:
           System.out.println("Java Programming");
           break;
       case 824:
           System.out.println("Python Programming");
           break;
       default:
           System.out.println("Invalid Input");
           break;
       }
       sc.close();
   }
}
```

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qs4.java > ...

```java
import java.util.*;

public class qs4 {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter room number: ");
        int number=sc.nextInt();
        switch (number) {
        case 823:
            System.out.println("Java Programming");
            break;
        case 824:
            System.out.println("Python Programming");
            break;
        default:
            System.out.println("Invalid Input");
            break;
        }
        sc.close();
    }
}

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10  cd "/
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home/
Enter room number: 823
Java Programming

 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10  cd "/
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home/
Enter room number: 824
Python Programming

 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10  cd "/
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home/
Enter room number: 865
Invalid Input

 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10
```

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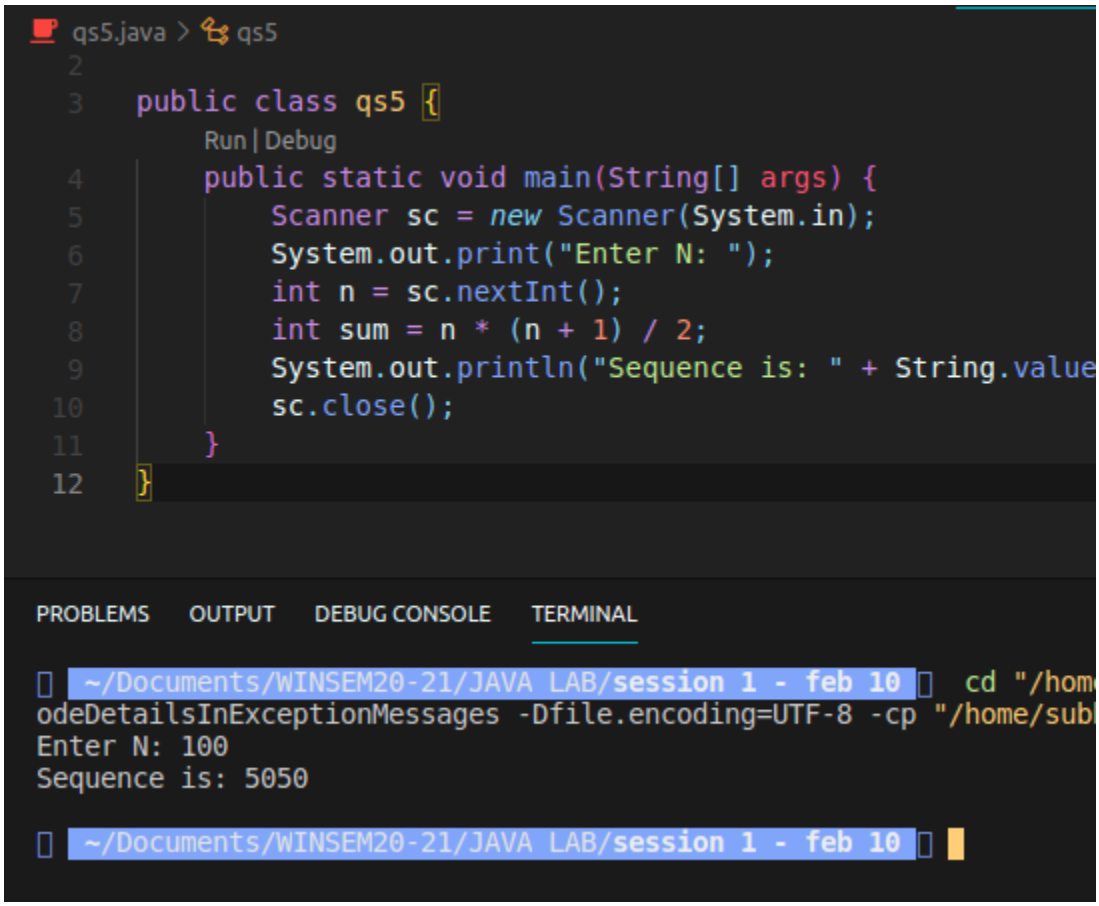
Question 5:

```java
import java.util.*;

public class qs5 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       System.out.print("Enter N: ");
       int n = sc.nextInt();
       int sum = n * (n + 1) / 2;
       System.out.println("Sequence is: " + sum);
       sc.close();
   }
}
```



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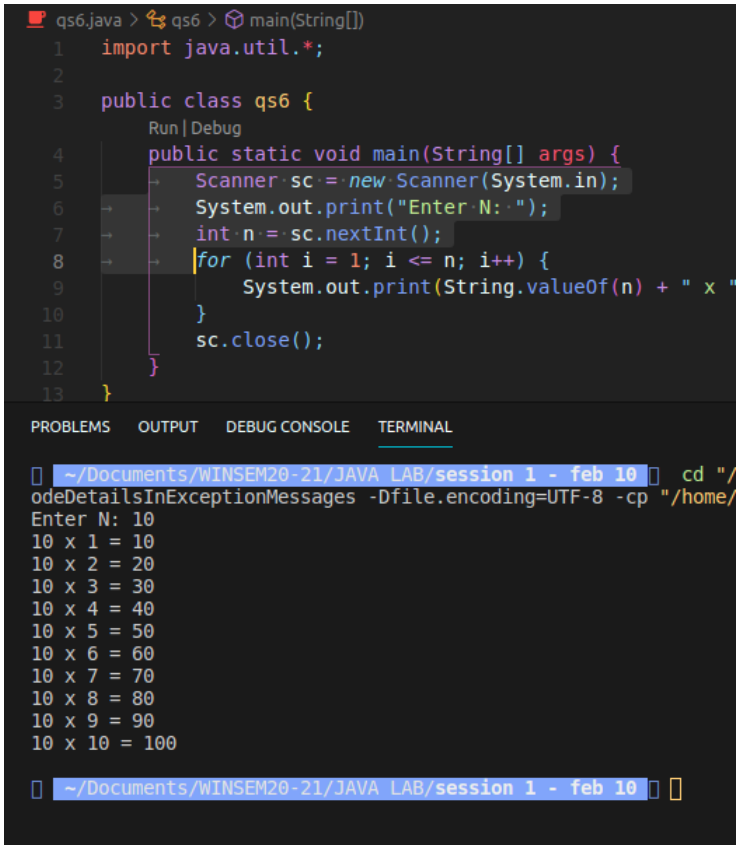
Question 6:

```java
import java.util.*;

public class qs6 {
   public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter N: ");
        int n = sc.nextInt();
        for (int i = 1; i <= n; i++) {
            System.out.print(String.valueOf(n) + " x " + String.valueOf(i)
+ " = " + String.valueOf(n * i) + "\n");
        }
        sc.close();
   }
}
```



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Question 7:

```java
import java.util.*;

public class qs7 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       int a = 0, b = 0, continueAdding = 1;
       int sum = 0;
       while (continueAdding == 1) {
           System.out.print("Enter first number: ");
           a = sc.nextInt();
           System.out.print("Enter second number: ");
           b = sc.nextInt();
           sum += a + b;
           System.out.println("Do you want to continue ?y=1/n=0");
           continueAdding = sc.nextInt();
       }
       System.out.println("Sum is: " + String.valueOf(sum));
       sc.close();
   }
}
```

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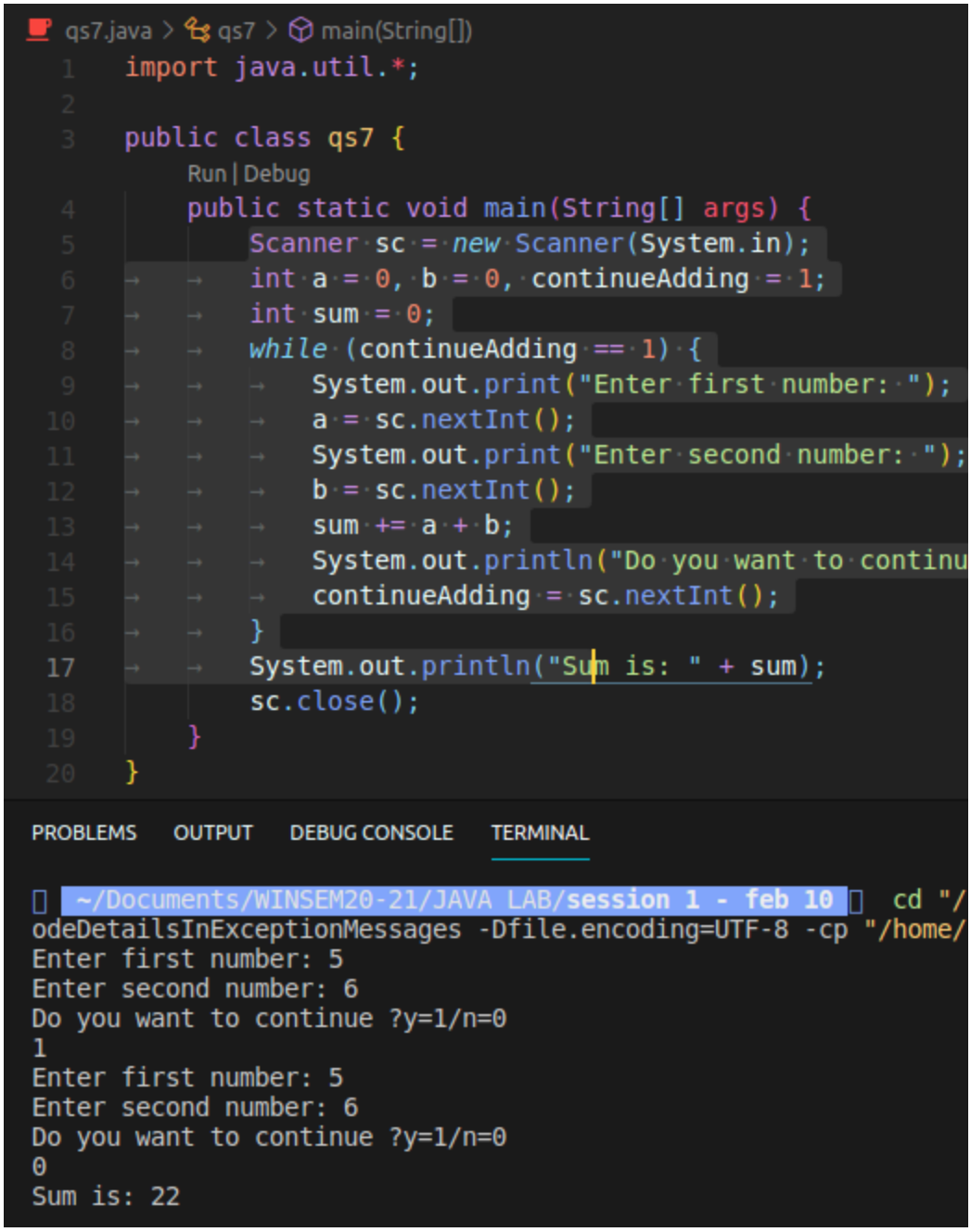

```
qs7.java > qs7 > main(String[])
1   import java.util.*;
2
3   public class qs7 {
        Run | Debug
4       public static void main(String[] args) {
5           Scanner sc = new Scanner(System.in);
6           int a = 0, b = 0, continueAdding = 1;
7           int sum = 0;
8           while (continueAdding == 1) {
9               System.out.print("Enter first number: ");
10              a = sc.nextInt();
11              System.out.print("Enter second number: ");
12              b = sc.nextInt();
13              sum += a + b;
14              System.out.println("Do you want to continu
15              continueAdding = sc.nextInt();
16          }
17          System.out.println("Sum is: " + sum);
18          sc.close();
19      }
20  }
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10  cd "/
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home/
Enter first number: 5
Enter second number: 6
Do you want to continue ?y=1/n=0
1
Enter first number: 5
Enter second number: 6
Do you want to continue ?y=1/n=0
0
Sum is: 22
```

Question 8:

```
import java.util.*;

public class qs8 {

   static Boolean isPrime(int n) {
       if (n<=1)
           return false;
```

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```
        for (int i=2; i<n; i++)
            if (n%i==0)
                return false;
        return true;
    }

    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Number");
        int x=sc.nextInt();
        int temp=0;
        int even=0;
        int odd=0;
        int prime=0;
        while (x>0) {
            temp=x%10;
            if (isPrime(temp)) {
                prime++;
            }
            if (temp%2==0)
            even++;
            else
            odd++;
            x/=10;
        }
        System.out.println("The number of even digits are:
"+String.valueOf(even));
        System.out.println("The number of odd digits are:
"+String.valueOf(odd));
        System.out.println("The number of prime digits are:
"+String.valueOf(prime));
        sc.close();
    }
}
```

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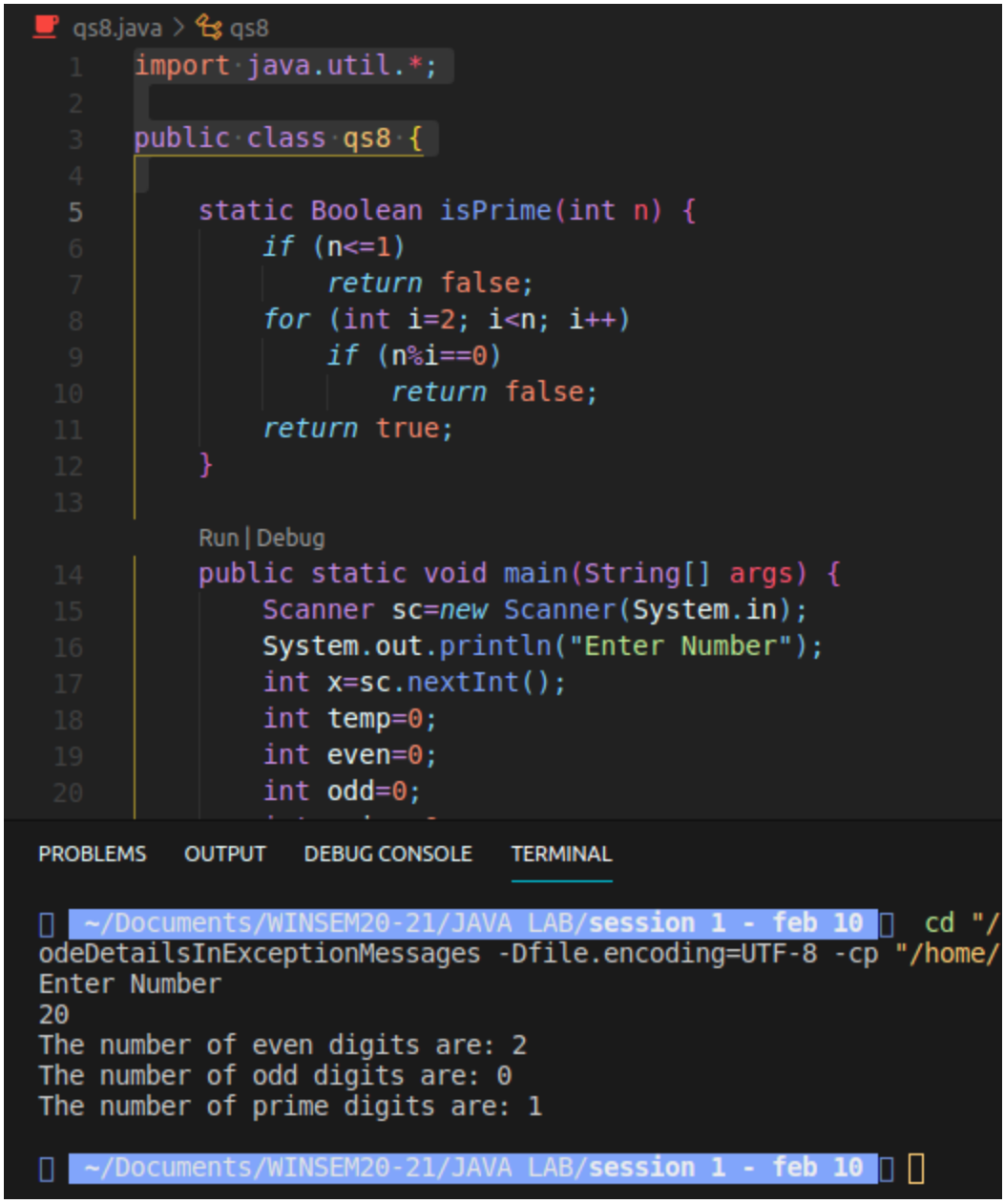

```
qs8.java > qs8
import java.util.*;

public class qs8 {

    static Boolean isPrime(int n) {
        if (n<=1)
            return false;
        for (int i=2; i<n; i++)
            if (n%i==0)
                return false;
        return true;
    }

    Run | Debug
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Number");
        int x=sc.nextInt();
        int temp=0;
        int even=0;
        int odd=0;
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10  cd "/
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home/
Enter Number
20
The number of even digits are: 2
The number of odd digits are: 0
The number of prime digits are: 1

 ~/Documents/WINSEM20-21/JAVA LAB/session 1 - feb 10
```

Question 9:

```
import java.util.*;

public class qs9 {
   public static void main(String[] args) {
       Scanner sc=new Scanner(System.in);
       String MobileNumber;
       System.out.println("Enter employee mobile number");
       MobileNumber = sc.nextLine();
```

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```
        switch (MobileNumber) {
        case "9012345621":
            System.out.println("Kumar has bonus:" + String.valueOf(500 *
(14)));
            break;
        case "8143567890":
            System.out.println("Dinesh has bonus:" + String.valueOf(500 *
(4)));
            break;
        case "7114567213":
            System.out.println("Ganesh has bonus:" + String.valueOf(500 *
(10)));
            break;
        case "9098456743":
            System.out.println("Not eligible for a bonus");
            break;
        case "8159056784":
            System.out.println("Rakesh has bonus:" + String.valueOf(500 *
(6)));
            break;
        default:
            System.out.println("Not eligible for bonus");
            break;
        }
        sc.close();
    }
}
```

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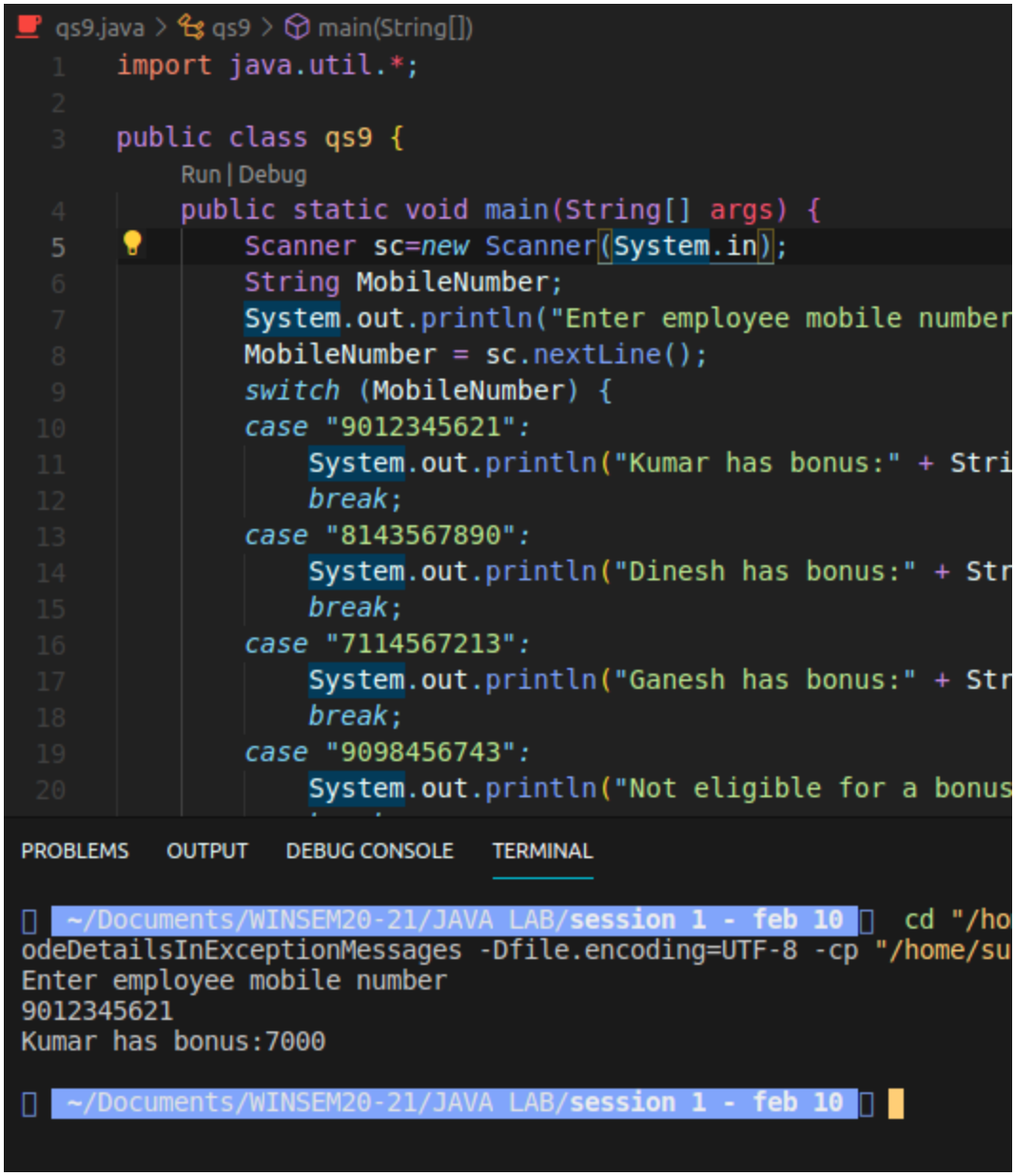

Question 10:

```
import java.util.*;

public class qs10 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       System.out.print("Enter number: ");
       String num = sc.next();
       StringBuilder input1 = new StringBuilder();
       input1.append(num);
```

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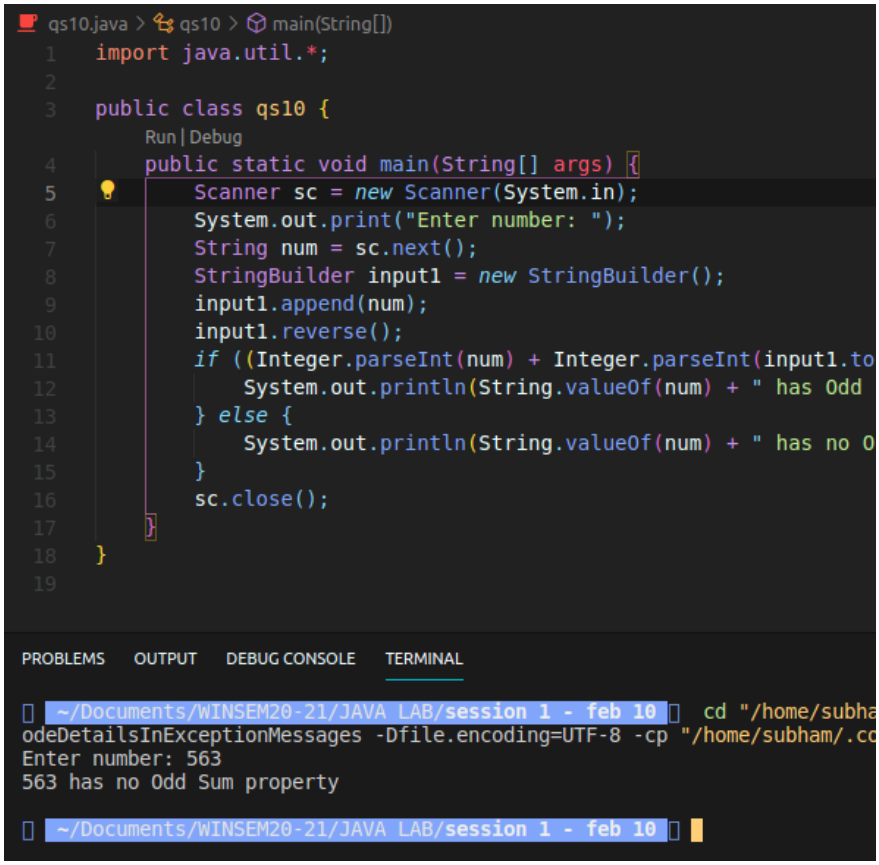
```
        input1.reverse();
        if ((Integer.parseInt(num) + Integer.parseInt(input1.toString())) %
2 != 0) {
            System.out.println(String.valueOf(num) + " has Odd Sum
property");
        } else {
            System.out.println(String.valueOf(num) + " has no Odd Sum
property");
        }
        sc.close();
    }
}
```



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ASSIGNMENT 2

Question 1:

```java
import java.util.*;

public class qs1 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       System.out.print("Enter side: ");
       int x = sc.nextInt();
       System.out.println("Area is: " + String.valueOf(x * x * 0.25 *
Math.sqrt(3.0)));
       sc.close();
   }
}
```

```
 ~/Documents/WINSEM20-21/JAVA LAB/s
.config/Code/User/workspaceStorage/a2
Enter side: 5
Area is: 10.825317547305483

 ~/Documents/WINSEM20-21/JAVA LAB/s
.config/Code/User/workspaceStorage/a2
Enter side: 10
Area is: 43.30127018922193
```

Question 2:

```java
import java.util.*;

public class qs2 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       System.out.print("Enter number of lines: ");
       int n = sc.nextInt();
       for (int i = 0; i < n + 1; i++) {
           for (int j = 0; j < i; j++) {
               System.out.print('*');
           }
           System.out.println();
```

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```
        }
        sc.close();
    }
}
```

```
 ~/Documents/WINSEM20-21/JAVA LAB
odeDetailsInExceptionMessages -Dfil
Enter number of lines: 5

*
**
***
****
*****
```

Question 3:

```
import java.util.*;

public class qs3 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter number of lines: ");
        int n = sc.nextInt();
        for (int i = 0; i < n + 1; i++) {
            for (int j = 0; j < i; j++) {
                System.out.print(j + 1);
            }
            System.out.println();
        }
        for (int i = n - 1; i > 0; i--) {
            for (int j = 0; j < i; j++) {
                System.out.print(j + 1);
            }
            System.out.println();
        }
        sc.close();
    }
}
```

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```
~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 17
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp
Enter number of lines: 10

1
12
123
1234
12345
123456
1234567
12345678
123456789
12345678910
123456789
12345678
1234567
123456
12345
1234
123
12
1
```

Question 4:

```java
import java.util.*;

public class qs4 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       int n;
       System.out.print("Enter number of elements: ");
       n = sc.nextInt();
       int arr[] = new int[n];
       System.out.println("Enter numbers: ");
       for (int i = 0; i < n; i++) {
           arr[i] = sc.nextInt();
       }

       int temp = 0;
       for (int i = 0; i < n; i++) {
           for (int j = 1; j < (n - i); j++) {
               if (arr[j - 1] > arr[j]) {
                   temp = arr[j - 1];
                   arr[j - 1] = arr[j];
```

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```
                    arr[j] = temp;
                }
            }
        }

        System.out.println("Sorted Array:");

        for (int i : arr) {
            System.out.print(i);
            System.out.print(" ");
        }
        sc.close();
    }
}
```

```
 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 17  c
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/h
Enter number of elements: 5
Enter numbers:
5
8
6
2
4
Sorted Array:
2 4 5 6 8 %

 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 17
```

Question 5:

```
import java.util.*;

public class qs5 {

    static int removeDuplicates(int arr[], int n) {
        if(n==0 || n==1)
            return n;

        int j = 0;
```

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```
        for (int i = 0; i < n-1; i++)
            if (arr[i] != arr[i+1])
                arr[j++] = arr[i];

        arr[j++] = arr[n-1];

        return j;
    }
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n;
        System.out.print("Enter number of elements: ");
        n = sc.nextInt();
        int arr[] = new int[n];
        System.out.print("Enter numbers: ");
        for (int i = 0; i < n; i++) {
            arr[i] = sc.nextInt();
        }

        int temp = 0;
        for (int i = 0; i < n; i++) {
            for (int j = 1; j < (n - i); j++) {
                if (arr[j - 1] > arr[j]) {
                    temp = arr[j - 1];
                    arr[j - 1] = arr[j];
                    arr[j] = temp;
                }
            }
        }

        n = removeDuplicates(arr, n);

        System.out.println("\n\nArray after being sorted and duplicates
removed:");

        for (int i = 0; i < n; i++) {
            System.out.print(arr[i]);
            System.out.print(" ");
        }
```

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```
        sc.close();
    }
}
```

```
 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 1
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -
Enter number of elements: 5
Enter numbers: 5
5
9
8
9


Array after being sorted and duplicates removed:
5 8 9 %

 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 1
```

Question 6:

```
import java.util.*;

public class qs6 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n;
        System.out.print("Enter number of elements: ");
        n = sc.nextInt();
        int arr[] = new int[n];
        System.out.print("Enter numbers: ");
        for (int i = 0; i < n; i++) {
            arr[i] = sc.nextInt();
        }

        for(int i=0; i<n/2; i++){
            int temp = arr[i];
            arr[i] = arr[n -i -1];
            arr[n -i -1] = temp;
          }

        for (int i : arr) {
```

```
            System.out.print(i);
            System.out.print(" ");
        }

        sc.close();

    }
}
```

```
odeDetailsInExceptionMessages -Dfi
Enter number of elements: 5
Enter numbers: 5
8
8
9
6
6 9 8 8 5
```

Question 7:

```
import java.util.*;

public class qs7 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n;
        System.out.print("Enter number of elements: ");
        n = sc.nextInt();
        int arr[] = new int[n];
        System.out.print("Enter numbers: ");
        for (int i = 0; i < n; i++) {
            arr[i] = sc.nextInt();
        }

        System.out.print("Enter the number to search: ");
        int search = sc.nextInt();

        int position = -1;

        for (int i = 0; i < n; i++) {
            if (arr[i] == search) {
                position = i;
```

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```
                break;
            }
        }

        if (position == -1) {
            System.out.println("Number " + search + " not found");
        } else {
            System.out
                    .println("Number " + search + " found at index position
" + position);
        }

        sc.close();

    }
}
```

```
 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 17  cd "
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home
Enter number of elements: 5
Enter numbers: 5
8
66
24
3
Enter the number to search: 3
Number 3 found at index position 4
```

Question 8:

```
import java.util.*;

public class qs8 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter n: ");
        int n = sc.nextInt();
        int arr[][] = new int[n][n];
        boolean flag = true;
```

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```
        System.out.println("Enter the number in row major order: ");
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < n; j++) {
                arr[i][j] = sc.nextInt();
            }
        }

        for (int i = 0; i < n; i++) {
            for (int j = 0; j < n; j++) {
                if (i == j && arr[i][j] != 1) {
                    flag = false;
                    break;
                }
                if (i != j && arr[i][j] != 0) {
                    flag = false;
                    break;
                }
            }
        }
        System.out.println(flag ? "The matrix is an Identity Matrix" : "The
matrix is not an Identity Matrix");
        sc.close();

    }
}
```

```
 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 1
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -
Enter n: 3
Enter the number in row major order:
1
2
3
4
5
6
7
8
9
The matrix is not an Identity Matrix
```

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Question 9;

```
import java.util.*;

public class qs9 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);

       System.out.print("Enter the number of rows: ");
       int r = sc.nextInt();
       System.out.print("Enter number of columns: ");
       int c = sc.nextInt();

       int arr[][] = new int[r][c];
       int transpose[][] = new int[c][r];

       System.out.println("Enter the number in row major order: ");
       for (int i = 0; i < r; i++) {
           for (int j = 0; j < c; j++) {
               arr[i][j] = sc.nextInt();
           }
       }

       System.out.println("\nThe matrix entered is: ");
       for (int i = 0; i < r; i++) {
           for (int j = 0; j < c; j++) {
               System.out.print(arr[i][j] + " ");
           }
           System.out.println();
       }

       for (int i = 0; i < r; i++) {
           for (int j = 0; j < c; j++) {
               transpose[j][i] = arr[i][j];
           }
       }

       System.out.println("\nThe transpose matrix is: ");
       for (int i = 0; i < c; i++) {
           for (int j = 0; j < r; j++) {
```

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```
                System.out.print(transpose[i][j] + " ");
            }
            System.out.println();
        }

        sc.close();

    }
}
```

```
 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 17  cd
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/ho
Enter the number of rows: 3
Enter number of columns: 4
Enter the number in row major order:
1
2
3
4
5
6
7
8
9
10
11
12

The matrix entered is:
1 2 3 4
5 6 7 8
9 10 11 12

The transpose matrix is:
1 5 9
2 6 10
3 7 11
4 8 12
```

Question 10:

```
import java.util.*;

public class qs10 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
```

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```
        System.out.print("Enter the number of rows: ");
        int r = sc.nextInt();
        System.out.print("Enter number of columns: ");
        int c = sc.nextInt();

        int arr[][] = new int[r][c];

        System.out.println("Enter the number in row major order: ");
        for (int i = 0; i < r; i++) {
            for (int j = 0; j < c; j++) {
                arr[i][j] = sc.nextInt();
            }
        }

        System.out.println("\nThe matrix entered is: ");
        for (int i = 0; i < r; i++) {
            for (int j = 0; j < c; j++) {
                System.out.print(arr[i][j] + " ");
            }
            System.out.println();
        }

        System.out.println("\nThe sum of rows of the matrix are: ");
        for (int i = 0; i < r; i++) {
            int sum = 0;
            for (int j = 0; j < c; j++) {
                sum += arr[i][j];
            }
            System.out.println(sum);
        }

        sc.close();
    }
}
```

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```
~/Documents/WINSEM20-21/JAVA LAB/session 2 -
odeDetailsInExceptionMessages -Dfile.encoding=U
Enter the number of rows: 3
Enter number of columns: 3
Enter the number in row major order:
1
2
3
4
5
6
7
8
9

The matrix entered is:
1 2 3
4 5 6
7 8 9

The sum of rows of the matrix are:
6
15
24
```

Question 11:

```
import java.util.*;

public class qs11 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);

       System.out.print("Enter the number of rows: ");
       int r = sc.nextInt();
       System.out.print("Enter number of columns: ");
       int c = sc.nextInt();

       int a[][] = new int[r][c];

       System.out.println("\nEnter the numbers of first matrix in row
major order: ");
       for (int i = 0; i < r; i++) {
           for (int j = 0; j < c; j++) {
               a[i][j] = sc.nextInt();
           }
```

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```
        }

        System.out.println("\nEnter the numbers of second matrix in row
major order: ");
        int temp = 0;
        for (int i = 0; i < r; i++) {
            for (int j = 0; j < c; j++) {
                temp = sc.nextInt();
                a[i][j] += temp;
            }
        }

        System.out.println("\n\nThe sum of the matrices are: ");
        for (int i = 0; i < r; i++) {
            for (int j = 0; j < c; j++) {
                System.out.print(a[i][j] + " ");
            }
            System.out.println();
        }

        sc.close();
    }
}
```

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```
 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 17  cd "/h
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home/s
Enter the number of rows: 3
Enter number of columns: 4

Enter the numbers of first matrix in row major order:
1
2
3
4
5
6
7
8
9
10
11
12

Enter the numbers of second matrix in row major order:
1
2
3
4
5
6
7
8
9
10
11
12


The sum of the matrices are:
2 4 6 8
10 12 14 16
18 20 22 24

 ~/Documents/WINSEM20-21/JAVA LAB/session 2 - feb 17
```

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ASSIGNMENT 3

Question 1:

```
import java.util.*;

public class qs1 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       System.out.print("Enter username: ");
       String username = sc.nextLine();
       System.out.print("Enter password: ");
       String pass = sc.nextLine();
       if (username.length() == 0 || pass.length() == 0) {
           System.out.println("Username or Password is empty");
           sc.close();
           return;
       }
       if (pass.length() < 8) {
           System.out.println("Password should me minimum 8 characters
long");
           sc.close();
           return;
       }
       if (pass.contains(username)) {
           System.out.println("Password contains username");
           sc.close();
           return;
       }

       System.out.print("Confirm password: ");
       String confPass = sc.nextLine();
       if (!confPass.equals(pass)) {
           System.out.println("Passwords do not match");
           sc.close();
           return;
       }
       sc.close();
   }
```

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```
}
```

```
~/Documents/WINSEM20-21/JAVA LAB/session 3 - feb 24
.config/Code/User/workspaceStorage/71ab73ff7e171c22cc503
Enter username: Subham
Enter password: password
Confirm password: password

~/Documents/WINSEM20-21/JAVA LAB/session 3 - feb 24
.config/Code/User/workspaceStorage/71ab73ff7e171c22cc503
Enter username: Subham
Enter password: pass
Password should me minimum 8 characters long

~/Documents/WINSEM20-21/JAVA LAB/session 3 - feb 24
```

Question 2:

```
import java.util.*;

public class qs2 {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       String[] regNos = new String[5];
       int index=0;
       while (index < 5) {
           System.out.print("Enter registration number " + (index + 1) +
": ");
           regNos[index] = sc.nextLine();
           if (regNos[index].contains("BEC")) {
               System.out.println("\nRegistration number should not belong
to BEC\n");
               continue;
           }
           index++;
       }

       String temp;
       for (int i = 0; i < 5; i++) {
           for (int j = 1; j < (5 - i); j++) {
               if (regNos[j - 1].compareTo(regNos[j]) > 0) {
                   temp = regNos[j - 1];
                   regNos[j - 1] = regNos[j];
```

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```
                    regNos[j] = temp;
                }
            }
        }

        System.out.println("\n\nThe sorted array of registrations numbers
are: ");
        for (int i = 0; i < 5; i++) {
            System.out.println(regNos[i]);
        }

        sc.close();
    }
}
```

```
Enter registration number 1: 19BIT0093
Enter registration number 2: 19BEC0098

Registration number should not belong to BEC

Enter registration number 2: 19BIT0098
Enter registration number 3: 19BME0178
Enter registration number 4: 19BBS5985
Enter registration number 5: 19BBS1234


The sorted array of registrations numbers are:
19BBS1234
19BBS5985
19BIT0093
19BIT0098
19BME0178
```

Question 3:

```
import java.util.*;

public class qs3 {

   static String reverse(String a) {
        StringBuilder s = new StringBuilder();
        s.append(a);
```

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```
        s.reverse();
        return s.toString();
    }
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter Sentence: ");
        String line = sc.nextLine();
        String[] arr = line.split("\\s+");
        for (int i = 0; i < arr.length; i++) {
            arr[i] = reverse(arr[i]);
        }
        System.out.println("Required reverse sentence is: "+String.join("
", Arrays.asList(arr)));
        sc.close();
    }
}
```

```
 ~/Documents/WINSEM20-21/JAVA LAB/session 3 - feb 24
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp
Enter Sentence: Satish teaches JAVA
Required reverse sentence is: hsitaS sehcaet AVAJ
```

Question 4:

```
import java.util.*;

public class qs4 {
    static int countOccurences(String str, String word) {
        String a[] = str.split("\\s+");
        int count = 0;
        for (int i = 0; i < a.length; i++) {
            if (word.equals(a[i]))
                count++;
        }
        return count;
    }

    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
```

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```
        System.out.print("Enter Sentence: ");
        String line = sc.nextLine();
        String[] arr = line.split("\\s+");
        Map<String, Integer> m = new HashMap<>();
        for (int i = 0; i < arr.length; i++) {
            m.put(arr[i], countOccurences(line, arr[i]));
        }

        System.out.println("The occurences of each word in the Sentence is:
");
        for (Map.Entry<String, Integer> e : m.entrySet())
            System.out.println(e.getKey() + " : " + e.getValue());
        sc.close();
    }
}
```

```
~/Documents/WINSEM20-21/JAVA LAB/session 3 - feb 24  cd "
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp "/home
Enter Sentence: My name is Subham Panda and subham is in IT
The occurences of each word in the Sentence is:
Subham : 1
in : 1
and : 1
name : 1
subham : 1
is : 2
IT : 1
My : 1
Panda : 1
```

Question 5:

```
import java.util.*;

public class qs5 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter string: ");
        String s = sc.nextLine();
        int vCount = 0;
        s = s.toLowerCase();
```

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```
        for (int i = 0; i < s.length(); i++) {
            if (s.charAt(i) == 'a' || s.charAt(i) == 'e' || s.charAt(i) ==
'i' || s.charAt(i) == 'o'
                    || s.charAt(i) == 'u') {
                vCount++;
            }
        }
        System.out.println("Number of vowels present in the string are: " +
vCount);
        sc.close();
    }
}
```

```
~/Documents/WINSEM20-21/JAVA LAB/session 3 - feb 24
odeDetailsInExceptionMessages -Dfile.encoding=UTF-8 -cp
Enter string: Subham Panda
Number of vowels present in the string are: 4
```

Question 6:

```
import java.util.*;

public class qs6 {
    public static String convertStringToHex(String str) {
        StringBuffer hex = new StringBuffer();
        for (char temp : str.toCharArray()) {
            int decimal = (int) temp;
            hex.append(Integer.toHexString(decimal));
        }
        return hex.toString();
    }

    public static String convertStringToBinary(String input) {
        StringBuilder result = new StringBuilder();
        char[] chars = input.toCharArray();
        for (char aChar : chars) {
            result.append(String.format("%8s",
Integer.toBinaryString(aChar)).replaceAll(" ", "0"));
```

```
        }
        return result.toString();
    }

    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the string: ");
        String x = sc.nextLine();
        System.out.println(convertStringToBinary(x));
        String y = convertStringToHex(x);
        System.out.println(y);
        System.out.println(convertStringToBinary(y));
        sc.close();
    }
}
```

Question 7:

```
import java.util.*;

public class qs7 {

    public static void main(String[] args)

    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the username: ");
        String username = sc.nextLine();
        System.out.println("Enter the password: ");
        String password = sc.nextLine();
        String temp;
        for (int i = 0; i < username.length() - 2; i++)

        {

            temp = username.substring(i, i + 3);
            if (password.indexOf(temp) != -1)
```

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```
            {
                System.out.println("It is a weak password");
                break;

            }
        }

        sc.close();

    }

}
```

```
 ~/Documents/WINSEM20
odeDetailsInExceptionMe
Enter the username:
Subham
Enter the password:
pubham
It is a weak password
```

Question 8:

```
import java.util.*;

public class qs8 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        boolean found=false;
        String arr[] =new String[5];
        for (int i=0; i<5; i++) {
            System.out.print("Enter Name "+(i+1)+": ");
            arr[i]=sc.nextLine();
        }
        System.out.print("\nEnter a name to search for: ");
        String toSearch = sc.nextLine();
        if(!toSearch.startsWith("Dr."))
            toSearch = "Dr." + toSearch;
        for (String s : arr) {
            if (s.equals(toSearch)) {
                found = true;
                break;
```

```
            }
        }
        System.out.println(found ? "Name Found" : "Name Not Found");
        sc.close();
    }
}
```

Question 9:

```
import java.util.*;

//class 1
class College {
    String collegeName = "Indian Institute of Technology";
    int collegeAge;
    String director;
    String dean;

    // only for admin
    // updated values
    public void setCollegeDetails(int collegeAge, String director, String
dean) {
        this.collegeAge = collegeAge;
        this.director = director;
        this.dean = dean;
    }

    public void GetCollegeDetails() {
        System.out.println("College Name :" + collegeName + "\nCollege Age
: " + collegeAge + "\nDirector :" + director
                + "\nDean : " + dean);
    }
}

// class 2
class Faculty extends College {
```

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```
   String qualification;
   int age;
   String department;
   String specialization, name, address;

   // only for admin
   public void setFacultyDetails(int age, String qualification, String
department, String specialization, String name,
           String address) {
       this.age = age;
       this.qualification = qualification;
       this.department = department;
       this.specialization = specialization;
       this.name = name;
       this.address = address;

   }

   public void getFacultyDetails() {
       System.out.println("Name :" + name + "\nAge : " + age +
"\nQualification:" + qualification + "\nDepartment : "
               + department + "\nSpecialization : " + specialization +
"\nAddress : " + address);
   }

}

// class 3
class Student extends College {

   String year;
   int age;
   String department;
   String branch, name, address;

   // only for admin
   public void setStudentDetails(int age, String year, String department,
String branch, String name, String address) {
       this.age = age;
       this.year = year;
```

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```
        this.department = department;
        this.branch = branch;
        this.name = name;
        this.address = address;

    }

    public void getStudentDetails() {
        System.out.println("Name :" + name + "\nAge : " + age + "\nyear:" +
year + "\nDepartment : " + department
                + "\nBranch : " + branch + "\nAddress : " + address);
    }

}

// class 4
class Course extends College {

    String courseName;
    int faculty;
    String department;

    // only for admin
    public void setCourseDetails(String courseName, String department,
String facutly) {
        this.courseName = courseName;
        this.faculty = faculty;
        this.department = department;

    }

    public void getCourseDetails() {
        System.out.println("Name :" + courseName + "\nDepartment : " +
department + "\nFaculty : " + faculty);
    }

}

class Department extends College {
```

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```
   String departmentName;
   String departmentHead;
   int totalFaculty;

   public void setDepartmentDetails(String departmentName, String
departmentHead, int totalFacutly) {
       this.departmentName = departmentName;
       this.departmentHead = departmentHead;
       this.totalFaculty = totalFaculty;

   }

   public void getDepartmentDetails() {
       System.out.println("Department Name :" + departmentName +
"\nDepartment HOD : " + departmentHead
               + "\nToatal Faculty : " + totalFaculty);
   }

}


class Sports extends College {

   String sportName, captain;
   int duration;

   public void setSportDetails(String sportName, String captain, int
duration) {
       this.sportName = sportName;
       this.captain = captain;
       this.duration = duration;

   }

   public void getSportDetails() {
       System.out.println("Sport Name :" + sportName + "\nCaptain : " +
captain + "\nduration : " + duration);
   }

}
```

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```
class CollegFest extends College {

   String festName, festSecretery;
   int duration;

   public void setFestDetails(String festName, String festSecretery, int
duration) {
       this.festName = festName;
       this.festSecretery = festSecretery;
       this.duration = duration;

   }

   public void getFestDetails() {
       System.out.println(
               "Fest Name :" + festName + "\nFest Sectretery : " +
festSecretery + "\nduration : " + duration);
   }

}

class Hostel extends College {

   String hostelName, hostelType, hostelIncharge;

   public void setHostelDetails(String hostelName, String hostelType,
String hostelIncharge) {
       this.hostelName = hostelName;
       this.hostelType = hostelType;
       this.hostelIncharge = hostelIncharge;

   }

   public void getHostelDetails() {
       System.out.println("Hostel Name :" + hostelName + "\nHostel Type :
" + hostelType + "\nHostel Incharge : "
               + hostelIncharge);
   }
```

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```
}

class CollegeCanteen extends College {
   String canteenName;
   int canteenStartTime, canteenEndTime;
   boolean canteenOpen;

   public void setCanteenDetails(String canteenName, int canteenStartTime,
int canteenEndTime, boolean canteenOpen) {
       this.canteenName = canteenName;
       this.canteenStartTime = canteenStartTime;
       this.canteenEndTime = canteenEndTime;
       this.canteenOpen = canteenOpen;

   }

   public void getCanteenDetails() {
       System.out.println("Canteen Name :" + canteenName + "\nCanteen Open
: " + canteenOpen
               + "\nCanteen Start Time : " + canteenStartTime + "\nCanteen
Close Time : " + canteenEndTime);
   }

}


public class qs9 {

   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       Scanner sc1 = new Scanner(System.in);

       System.out.println("ENTER FACULTY DETAILS");
       System.out.println("Enter age: ");
       int age = sc1.nextInt();
       System.out.println("Enter qualification: ");
       String qualification = sc.nextLine();
       System.out.println("Enter department: ");
       String department = sc.nextLine();
```

```
        System.out.println("Enter specialization: ");
        String specialization = sc.nextLine();
        System.out.println("Enter name: ");
        String name = sc.nextLine();
        System.out.println("Enter address: ");
        String address = sc.nextLine();
        Faculty f1 = new Faculty();
        f1.setFacultyDetails(age, qualification, department,
specialization, name, address);
        f1.getFacultyDetails();

        System.out.println("ENTER STUDENT DETAILS");
        System.out.println("Enter age: ");
        int sage = sc1.nextInt();
        System.out.println("Enter name: ");
        String sname = sc.nextLine();
        System.out.println("Enter department: ");
        String sdepartment = sc.nextLine();
        System.out.println("Enter year: ");
        String syear = sc.nextLine();
        System.out.println("Enter branch: ");
        String sbranch = sc.nextLine();
        System.out.println("Enter address: ");
        String saddress = sc.nextLine();
        Student s1 = new Student();
        s1.setStudentDetails(sage, syear, sdepartment, sbranch, sname,
saddress);
        s1.getStudentDetails();

        sc.close();
        sc1.close();

    }
}
```

Question 10:

```
/* product class*/
class Products {
```

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```
    private String productId;
    private String name;
    private int serialNumber;
    private String company;
    private String manufacturedDate;
    int price;

    /* constructor */
    Products(String pId, String name, int serialNumber, String company,
String manufacturedDate, int price) {
        this.productId = pId;
        this.name = name;
        this.serialNumber = serialNumber;
        this.company = company;
        this.manufacturedDate = manufacturedDate;
        this.price = price;

    }

    /* geter methods */
    public String getproductId() {
        return productId;
    }

    public String getName() {
        return name;
    }

    public int getSerialNumber() {
        return serialNumber;
    }

    public String getCompany() {
        return company;
    }

    public String getManufacturedDate() {
        return manufacturedDate;
    }
```

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```
    public int getPrice() {
        return price;
    }

}

public class qs10 {
    public static void main(String[] args) {
        /* Creating array of proucts */
        Products prod[] = new Products[5];

        /* assigning values */
        prod[0] = new Products("1", "Mobile", 123, "Samsung", "20july2017",
20000);
        prod[1] = new Products("2", "laptop", 223, "Lenovo", "1jan2014",
50000);
        prod[2] = new Products("3", "Earphone", 323, "Boat", "10oct2020",
500);
        prod[3] = new Products("4", "Bluetooth Earphone", 423, "Sony",
"5may2020", 900);
        prod[4] = new Products("5", "Bike", 523, "Honda", "15april2015",
90000);

        /* methods call */
        displaySamsung(prod);
        displayManufacturedBW2012and2019(prod);
        displayPriceGreater10000(prod);
        displayLaptop(prod);
    }

    /* It Will display all Samsung produtcs */
    static void displaySamsung(Products p[]) {

        System.out.println("\nAll Samsung");
        /* loop running till product array length */
        for (int i = 0; i < p.length; i++) {
            /* chechking company name */
            if (p[i].getCompany().equals("Samsung")) {
                System.out.println("Id = " + p[i].getproductId() + " Name =
" + p[i].getName() + " SerialNumber = "
```

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```
                        + p[i].getSerialNumber() + " Company = " +
p[i].getCompany() + " ManufacturedDate = "
                        + p[i].getManufacturedDate() + " Price = " +
p[i].getPrice());
            }
        }
    }

    /* It Will display all produtcs which Manufactured between 2012 and
2019 */
    static void displayManufacturedBW2012and2019(Products p[]) {
        System.out.println("\nManufactured between 2012 and 2019");
        /* loop running till product array length */
        for (int i = 0; i < p.length; i++) {
            char c[] = p[i].getManufacturedDate().toCharArray();
            int len = c.length;
            String year = "" + (char) c[len - 4] + (char) c[len - 3] +
(char) c[len - 2] + (char) c[len - 1];
            int y = Integer.parseInt(year);
            /* chechking year */
            if ((y > 2012) && (y < 2019)) {
                System.out.println("Id = " + p[i].getproductId() + " Name =
" + p[i].getName() + " SerialNumber = "
                        + p[i].getSerialNumber() + " Company = " +
p[i].getCompany() + " ManufacturedDate = "
                        + p[i].getManufacturedDate() + " Price = " +
p[i].getPrice());
            }
        }
    }

    /* It Will display product which price is greater then 10000 */
    static void displayPriceGreater10000(Products p[]) {
        System.out.println("\nPrice Greater then 10000");
        /* loop running till product array length */
        for (int i = 0; i < p.length; i++) {

            int pr = p[i].getPrice();
            /* chechking price */
            if (pr > 10000) {
```

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```
                System.out.println("Id = " + p[i].getproductId() + " Name =
" + p[i].getName() + " SerialNumber = "
                        + p[i].getSerialNumber() + " Company = " +
p[i].getCompany() + " ManufacturedDate = "
                        + p[i].getManufacturedDate() + " Price = " +
p[i].getPrice());
            }
        }
    }

    /* It Will display all laptop produtcs */
    static void displayLaptop(Products p[]) {
        System.out.println("\nLaptops");
        /* loop running till product array length */
        for (int i = 0; i < p.length; i++) {

            /* chechking name of product */
            if (p[i].getName().equals("laptop")) {
                System.out.println("Id = " + p[i].getproductId() + " Name =
" + p[i].getName() + " SerialNumber = "
                        + p[i].getSerialNumber() + " Company = " +
p[i].getCompany() + " ManufacturedDate = "
                        + p[i].getManufacturedDate() + " Price = " +
p[i].getPrice());
            }
        }
    }
}
```