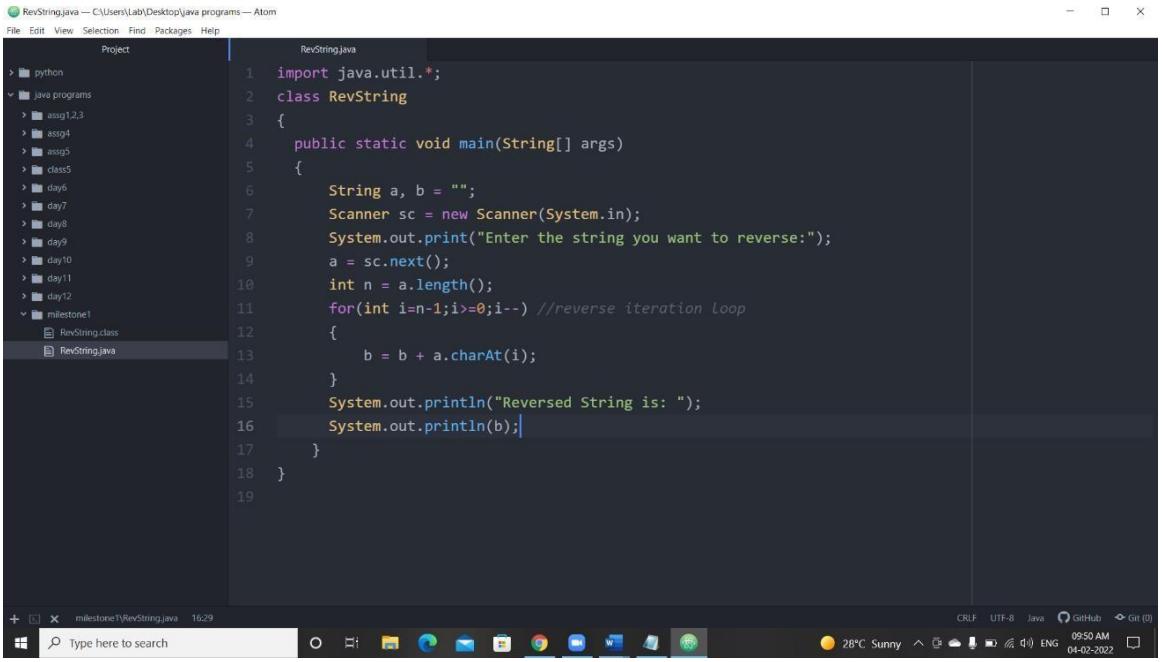
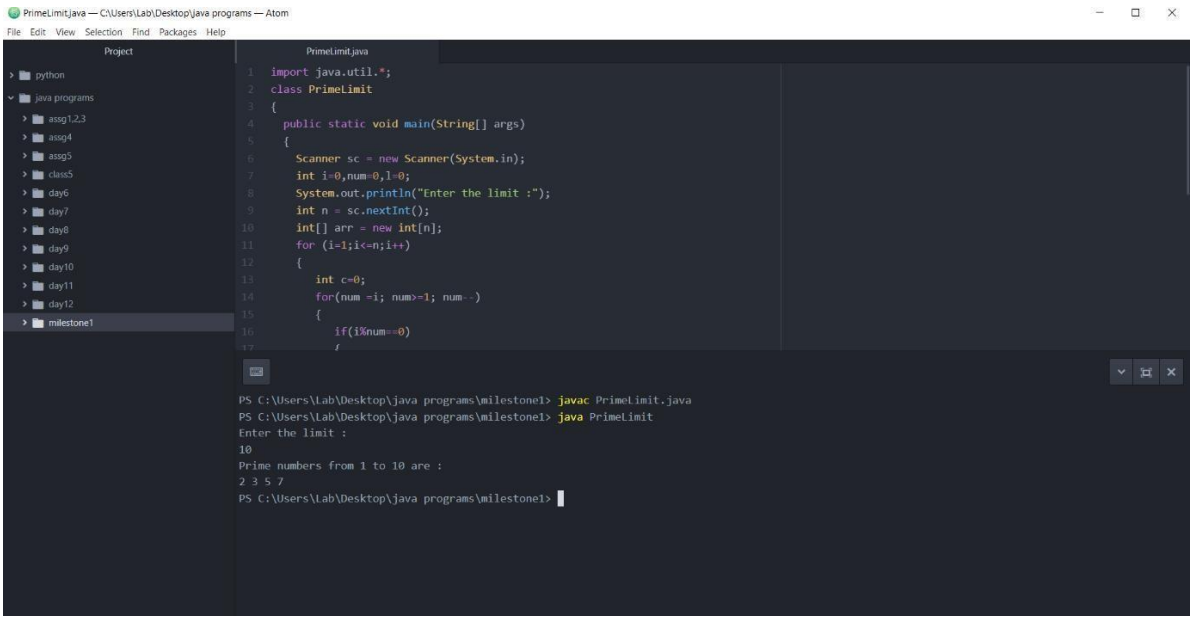
MILESTONE-1

NAJMA E-211495

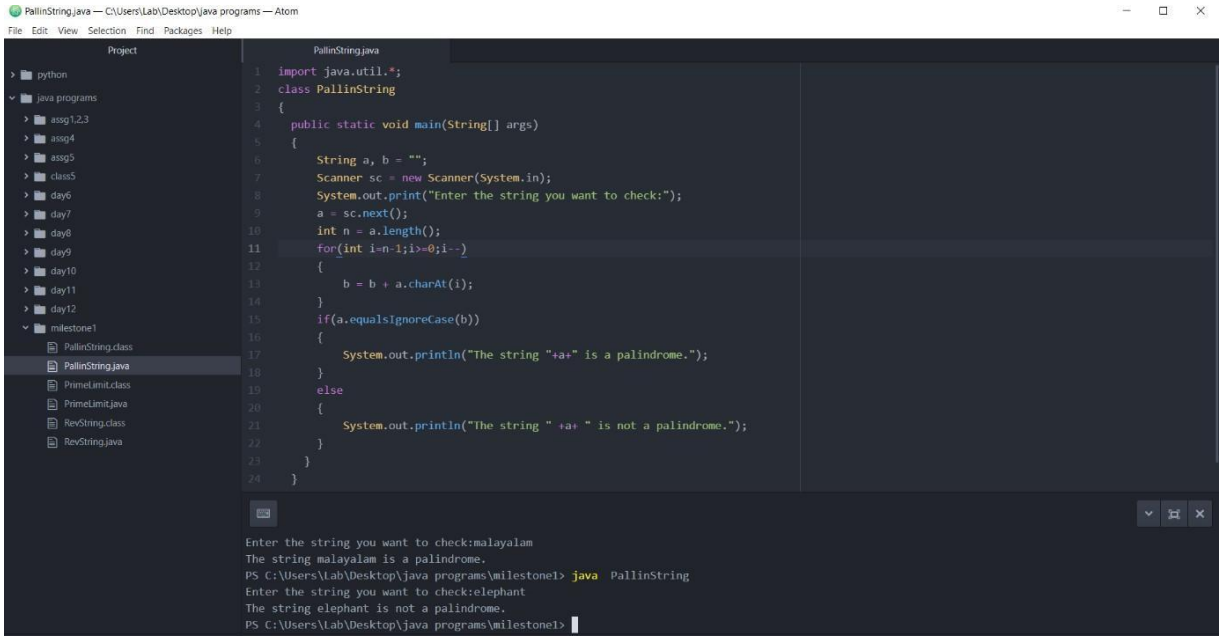
1. **Write a Java Program to reverse a string without using String inbuilt function reverse ().**



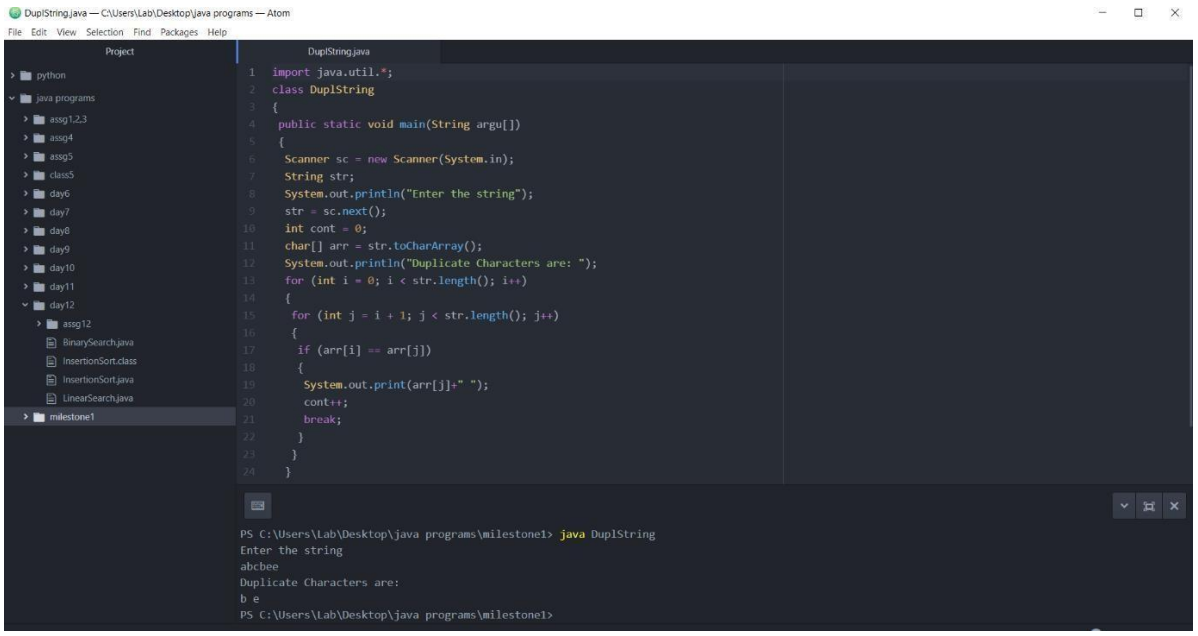
2. **Write a program to take an input number from the programmer and calculate all the prime numbers from 0 to that number. Store all the prime numbers in an array and display the array elements.**
   Example: Input=10 Output:
   1,2,3,5,7



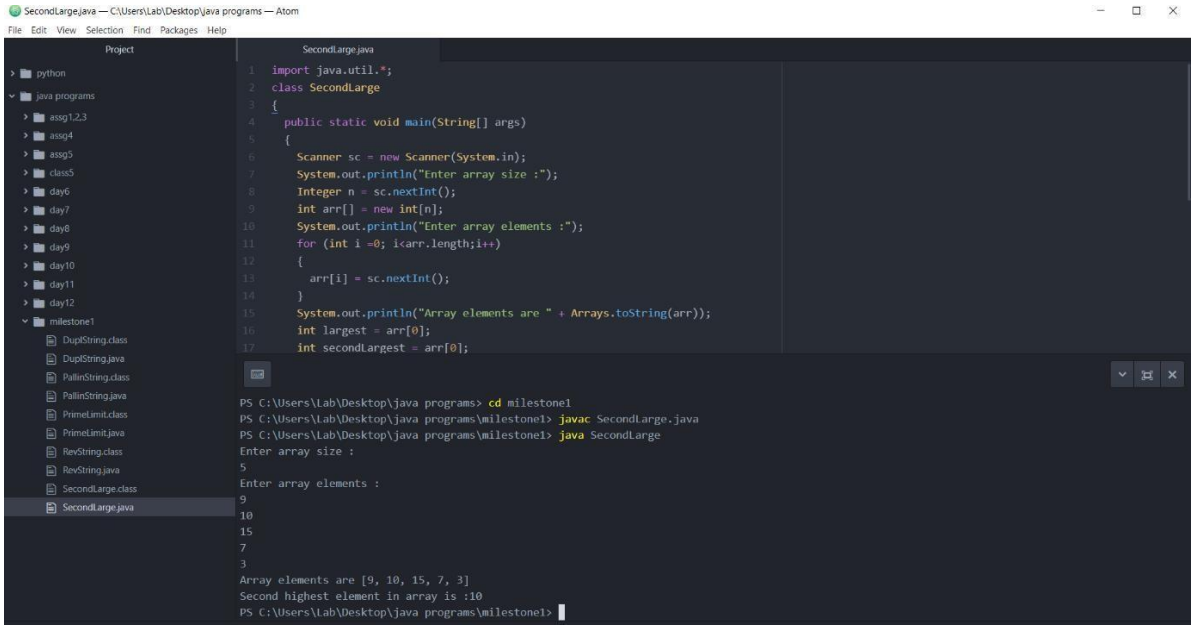
3. **Write a Java Program to find whether a string or number is palindrome or not.**



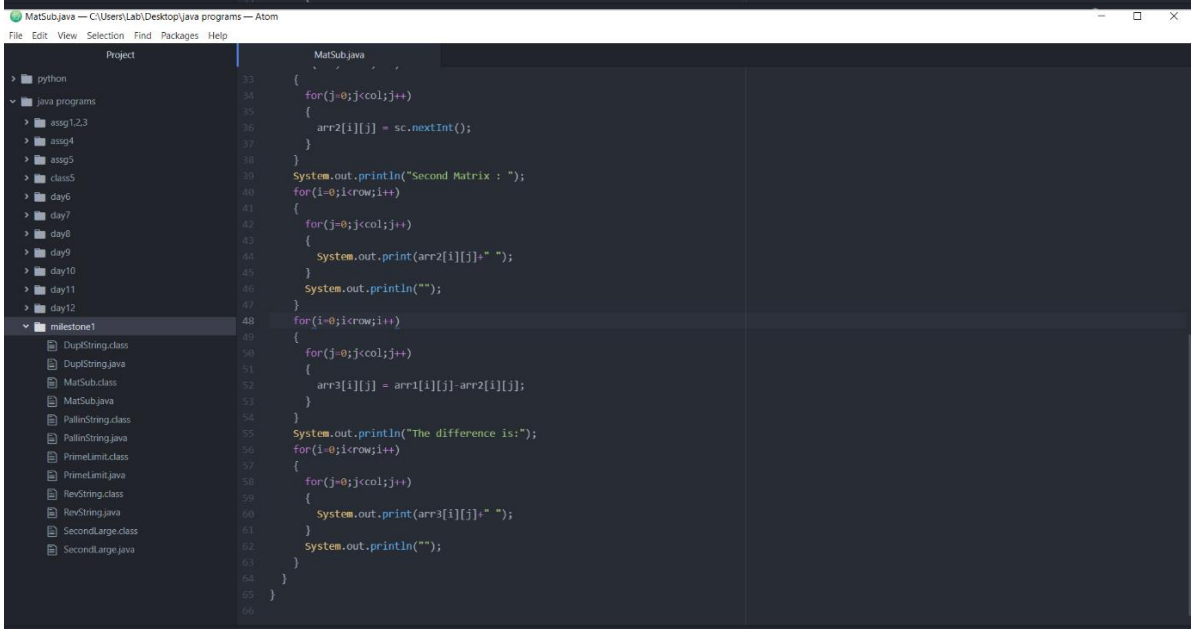
4. **Write a Java Program to find the duplicate characters in a string.**



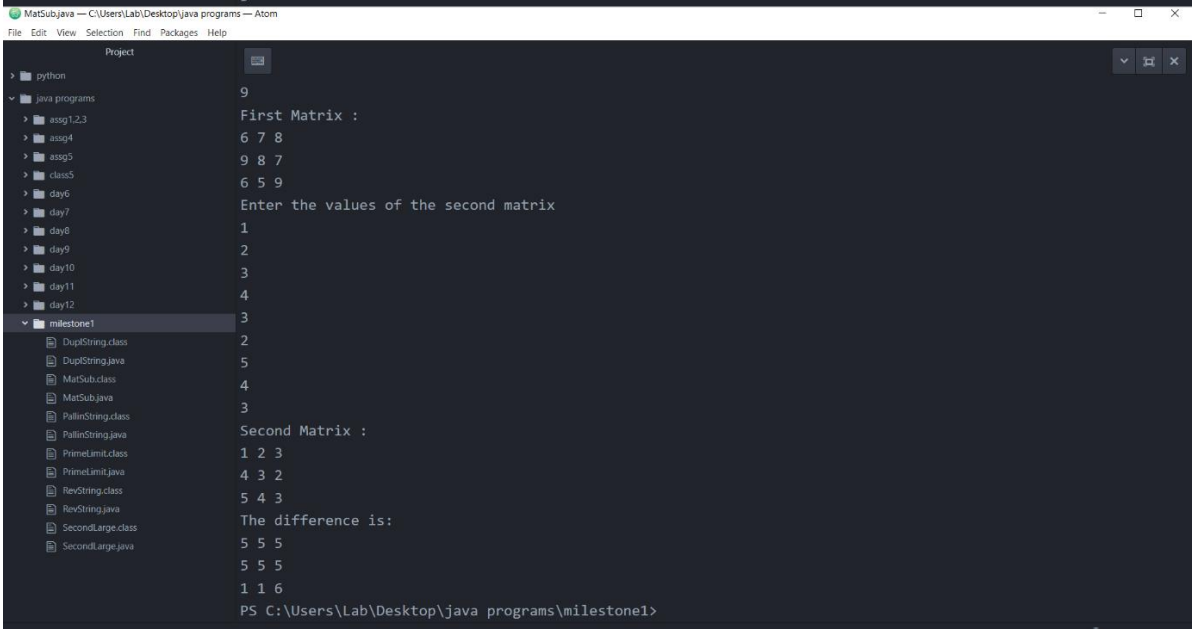
5. Write a Java Program to find the second-highest number in an array.



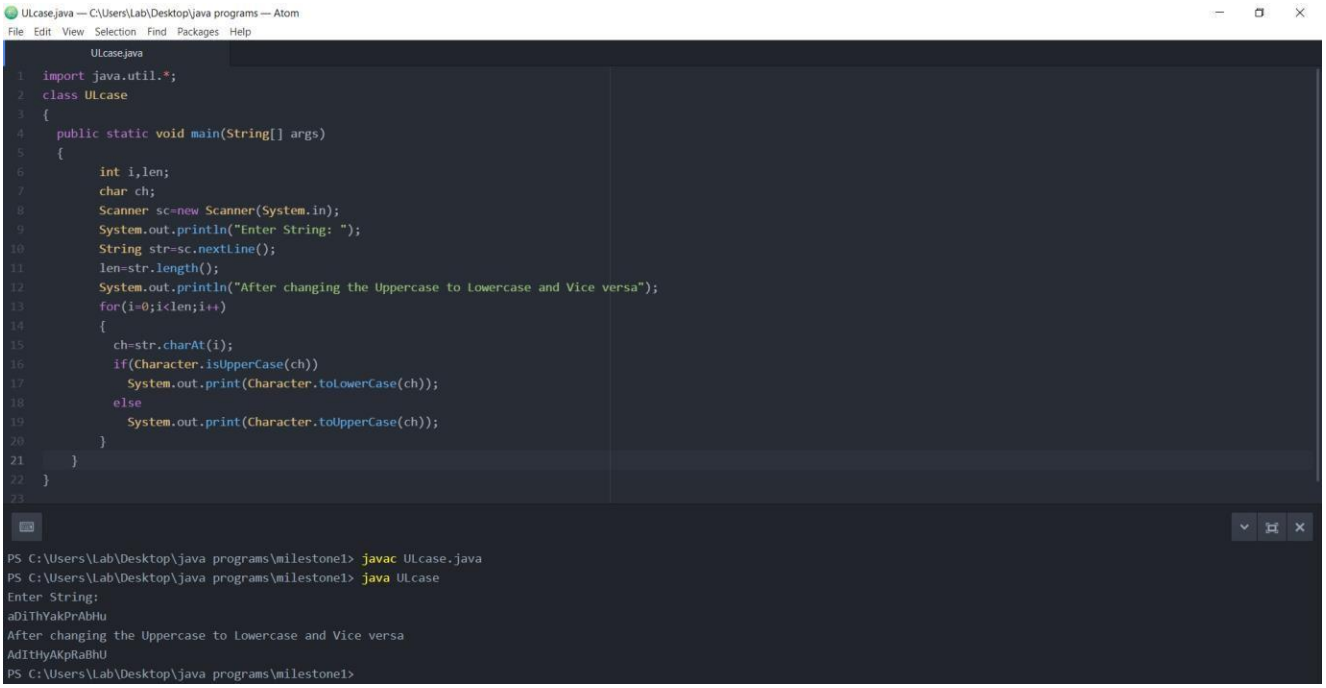
6. **Write a java program to subtract two matrices. Take the input of the matrices from the user.**




MatSub.java — C:\Users\Lab\Desktop\java programs — Atom
File Edit View Selection Find Packages Help
Project
python
java programs
assg1,2,3
assg4
assg5
class5
day6
day7
day8
day9
day10
day11
day12
milestone1
DuplString.class
DuplString.java
MatSub.class
MatSub.java
PallinString.class
PallinString.java
PrimeLimit.class
PrimeLimit.java
RevString.class
RevString.java
SecondLarge.class
SecondLarge.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java MatSub
Enter the value of row and column size of the matrix
3
3
Enter the values of the first matrix
6
7
8
9
8
7
6
5
9
First Matrix :
6 7 8
9 8 7
6 5 9
Enter the values of the second matrix
1
2
3
4
3

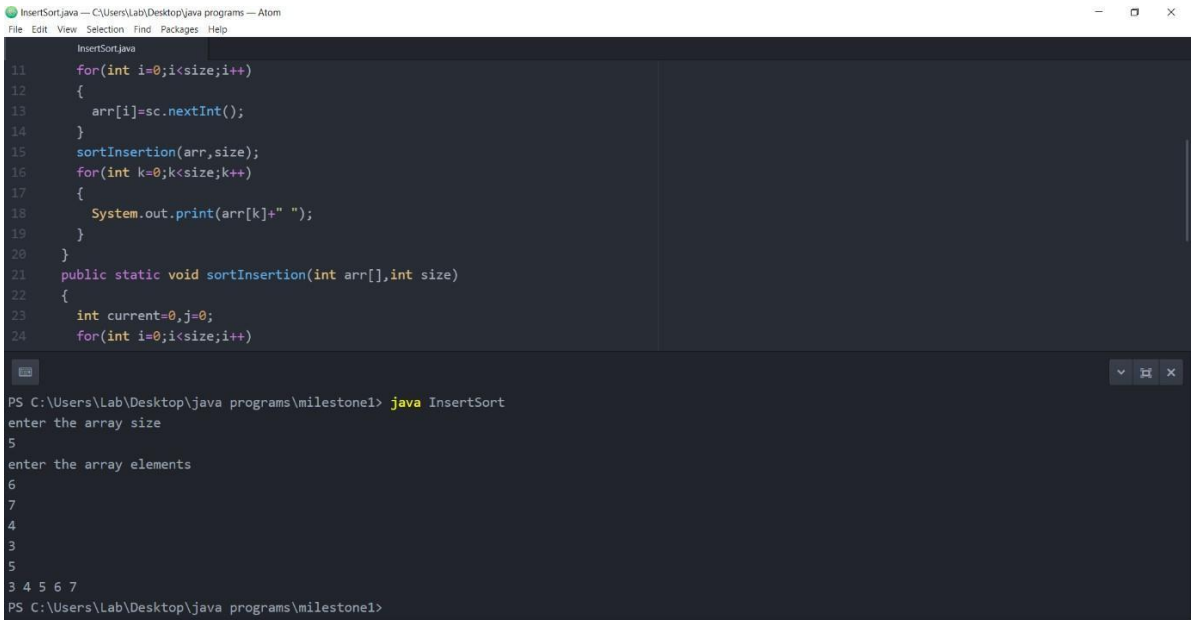

MatSub.java — C:\Users\Lab\Desktop\java programs — Atom
File Edit View Selection Find Packages Help
Project
python
java programs
assg1,2,3
assg4
assg5
class5
day6
day7
day8
day9
day10
day11
day12
milestone1
DuplString.class
DuplString.java
MatSub.class
MatSub.java
PallinString.class
PallinString.java
PrimeLimit.class
PrimeLimit.java
RevString.class
RevString.java
SecondLarge.class
SecondLarge.java
9
First Matrix :
6 7 8
9 8 7
6 5 9
Enter the values of the second matrix
1
2
3
4
3
2
5
4
3
Second Matrix :
1 2 3
4 3 2
5 4 3
The difference is:
5 5 5
5 5 5
1 1 6
PS C:\Users\Lab\Desktop\java programs\milestone1>

7. **Write a java program to take a string input from the user. Convert all the uppercase letters to lowercase and vice-versa.**



8. **Write a java program to take an input array of integers and sort the array using insertion sort.**


InsertSort.java — C:\Users\Lab\Desktop\java programs — Atom
File Edit View Selection Find Packages Help
InsertSort.java
for(int i=0;i<size;i++)
{
arr[i]=sc.nextInt();
}
sortInsertion(arr,size);
for(int k=0;k<size;k++)
{
System.out.print(arr[k]+" ");
}
}
public static void sortInsertion(int arr[],int size)
{
int current=0,j=0;
for(int i=0;i<size;i++)
{
current=arr[i];
j=i-1;
while(j>=0 && arr[j]>current)
{
arr[j+1]=arr[j];
j--;
}
arr[j+1]=current;
}
}
}


InsertSort.java — C:\Users\Lab\Desktop\java programs — Atom
File Edit View Selection Find Packages Help
InsertSort.java
for(int i=0;i<size;i++)
{
arr[i]=sc.nextInt();
}
sortInsertion(arr,size);
for(int k=0;k<size;k++)
{
System.out.print(arr[k]+" ");
}
}
public static void sortInsertion(int arr[],int size)
{
int current=0,j=0;
for(int i=0;i<size;i++)
PS C:\Users\Lab\Desktop\java programs\milestone1> java InsertSort
enter the array size
5
enter the array elements
6
7
4
3
5
3 4 5 6 7
PS C:\Users\Lab\Desktop\java programs\milestone1>

9. **Write a java program to take an input array of integers and search for a particular number given by the user. Use binary search algorithm.**

```
import java.util.Scanner;
class BinSearch
{
   public static void main(String args[])
   {
      int i, num, item, array[], first, last, middle;
      Scanner input = new Scanner(System.in);
      System.out.println("Enter number of elements:");
      num = input.nextInt();
      array = new int[num];
      System.out.println("Enter " + num + " integers");
      for (i=0; i<num;i++)
          array[i] = input.nextInt();
      System.out.println("Enter the search value:");
      item = input.nextInt();
      first = 0;
      last = num - 1;
      middle = (first+last)/2;
      while( first <= last )
      {
         if (array[middle]<item)
           first = middle + 1;
         else if (array[middle]==item)
         {
           System.out.println(item + " found at location " + (middle+1) + ".");
           break;
         }
```

```
        for (i=0; i<num;i++)
            array[i] = input.nextInt();
        System.out.println("Enter the search value:");
        item = input.nextInt();
        first = 0;
        last = num - 1;
        middle = (first+last)/2;
        while( first <= last )
        {
           if (array[middle]<item)
             first = middle + 1;
           else if (array[middle]==item)
           {
             System.out.println(item + " found at location " + (middle+1) + ".");
             break;
           }
           else
           {
               last=middle-1;
           }
           middle=(first+last)/2;
        }
        if (first>last )
            System.out.println(item + " is not found.\n");
    }
}
```

BinSearch.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac BinSearch.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java BinSearch
Enter number of elements:
5
Enter 5 integers
2
3
8
6
5
Enter the search value:
8
8 found at location 3.
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

milestone1\BinSearch.java 3:2 CRLF UTF-8 Java GitHub Git (0)

10. Write a java program to take an input array of integers and sort the elements in a descending order using selection sort.

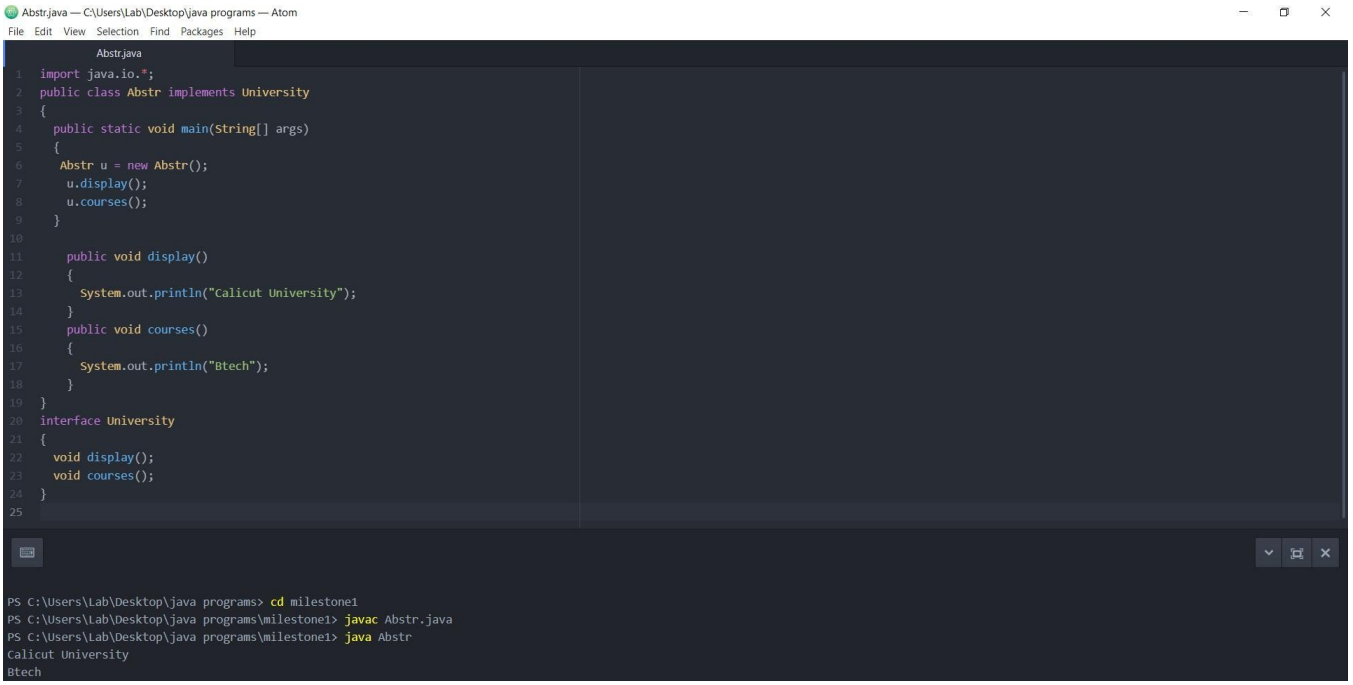
SelectDesc.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

SelectDesc.java

```
import java.util.*;
class SelectDesc
{
  public static void main(String[] args)
  {
    Scanner sc = new Scanner(System.in);
    int n,i,j,t=0;
    System.out.println("Enter the number of elements in the array");
    n = sc.nextInt();
    System.out.println("Enter elements into the first array");
    int[] arr= new int[n];
    for(i=0;i<n;i++)
    {
      arr[i] = sc.nextInt();
    }
    System.out.println("The resultant array after sorting: ");
    for(i=0;i<n;i++)
    {
      for(j=i+1;j<n;j++)
      {
        if(arr[i]<arr[j])
        {
          t=arr[i];
          arr[i]=arr[j];
          arr[j]=t;
        }
      }
    }
    for(i=0;i<n;i++)
    {
      System.out.print(arr[i]+"  ");
    }
  }
}
```

11.Write a java program to achieve 100% abstraction.



12.Write a java program to implement method overloading.

MethOver.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

MethOver.java

```
class MethOver
{
  public static void main(String[] args)
  {
    add(100,20);
    sub(12.23,10.12);
    add(10,12.5);
    sub(20,10);
  }
  static void add(int a,int b)
  {
    System.out.println(a+b);
  }
  static void add(double a,double b)
  {
    System.out.println(a+b);
  }
  static void sub(int a,int b)
  {
    System.out.println(a-b);
  }
  static void sub(double a,double b)
  {
    System.out.println(a-b);
} }
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> java MethOver
120
2.110000000000001
22.5
10
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

13.Write a java program to implement method overriding.

MethRide.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

MethRide.java

```
class MethRide
{
  public static void main(String[] args)
  {
    University u = new Uoc();
    u.display();
    u.location();
  }
}
class University
{ void display()
  {
    System.out.println("University invoked");
  }
  void location()
  {
    System.out.println("Throughout Kerala");
  }
}
class Uoc extends University
{
  void display()
  {
    System.out.println("University of Calicut invoked");
  }
  void location()
  {
    System.out.println("In Malappuram");
  }
}
```

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Lab\Desktop\java programs> cd milestone1
PS C:\Users\Lab\Desktop\java programs\milestone1> javac MethRide.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java MethRide
University of Calicut invoked
In Malappuram
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

14.Write a java program to implement Hybrid Inheritance.

Hybrid.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

Hybrid.java

```
class C
{
   public void disp()
   {
      System.out.println("C");
   }
}
class A extends C
{
   public void disp()
   {
      System.out.println("A");
   }
}
class B extends C
{
   public void disp()
   {
      System.out.println("B");
   }
}
class Hybrid extends A
{
   public void disp()
   {
  System.out.println("Hybrid Body");
   }
   public static void main(String args[])
   {
      Hybrid obj = new Hybrid();
      obj.disp();
   }
}

```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac Hybrid.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java Hybrid
Hybrid Body
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

15.Write a java program to implement multilevel inheritance.

MultiLevel.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

MultiLevel.java

```
public class MultiLevel
{
  public static void main(String[] args)
  {
    MulC2 x= new MulC2();
    x.disp();
    x.disp1();
    x.disp2();
  }
}
class MulC
{
  void disp()
  {
    System.out.println("This is super class");
  }
}
class MulC1 extends MulC
{
  void disp1()
  {
  System.out.println("This is sub class-1");
  }
}
class MulC2 extends MulC1
{
  void disp2()
  {
  System.out.println("This is sub class-2");
  }
}
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac MultiLevel.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java MultiLevel
This is super class
This is sub class-1
This is sub class-2
```

16. Write a java program to take input of integer array elements from the user and divide each element by the smallest element of the array and store the result in a resultant array. Implement Try- catch- finally block to counter null pointer divide by zero error.

DivSmall.java — C:\Users\Lab\Desktop\java programs — Atom

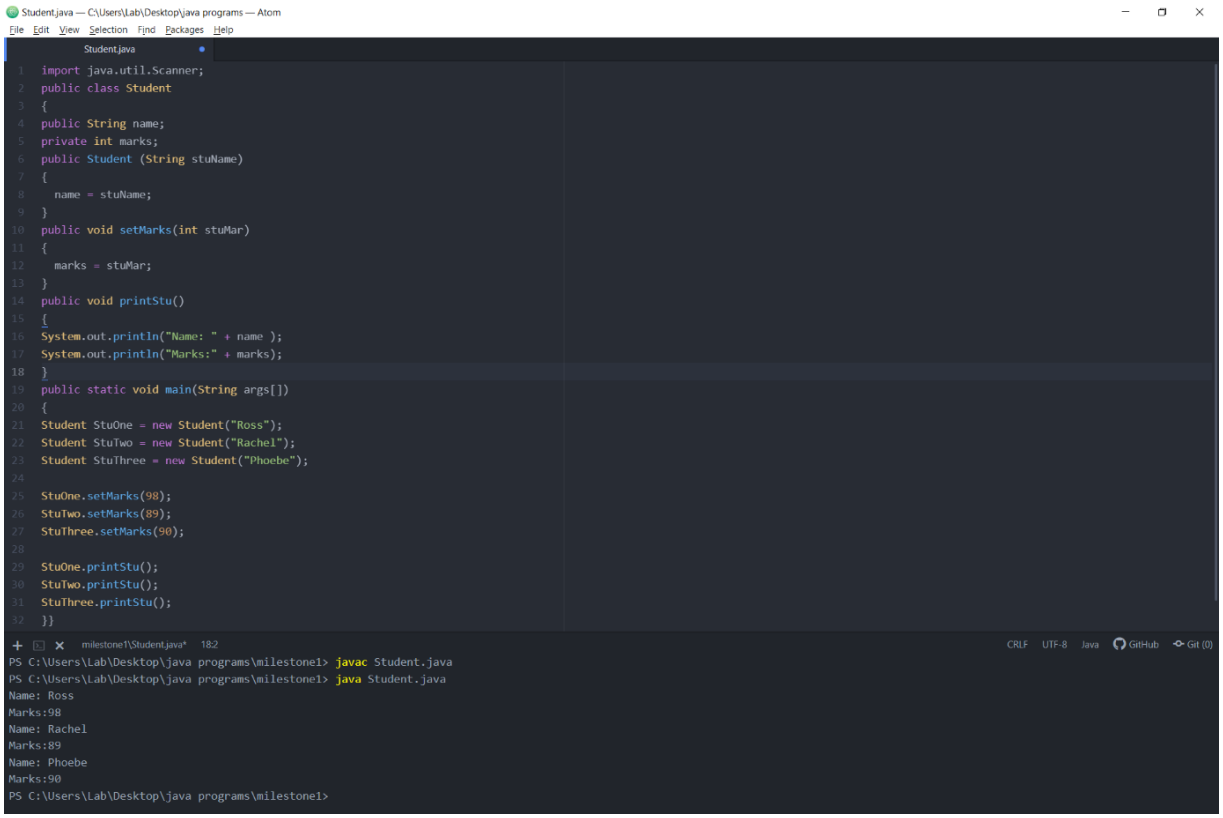
File Edit View Selection Find Packages Help

DivSmall.java

```
import java.util.*;
class DivSmall
{
  public static void main(String[] args)
  {
    Scanner sc = new Scanner(System.in);
    int n,i,min=0;
    System.out.println("Enter the number of elements");
    n = sc.nextInt();
    int[] arr = new int[n];
    int[] res = new int[n];
    System.out.println("Enter the elements to the array");
    for(i=0;i<n;i++)
    {
      arr[i] = sc.nextInt();
    }
    min = arr[0];
    for(i=0;i<n;i++)
    {
      if(arr[i]<min)
      {
        min=arr[i];
      }}
    try
    {
      for(i=0;i<n;i++)
      {
        res[i]= arr[i]/min;
      }
      System.out.println("Resultant array is : ");
      System.out.println(Arrays.toString(res));
    }
    catch(ArithmeticException e)
    {
      System.out.println("Cant divide by zero");
    }
    catch(NullPointerException e)
    {
      System.out.println("NullPointerException Caught");
    }
    finally
    {
      System.out.println("The program has been executed successfully");
    }
  }
}
```

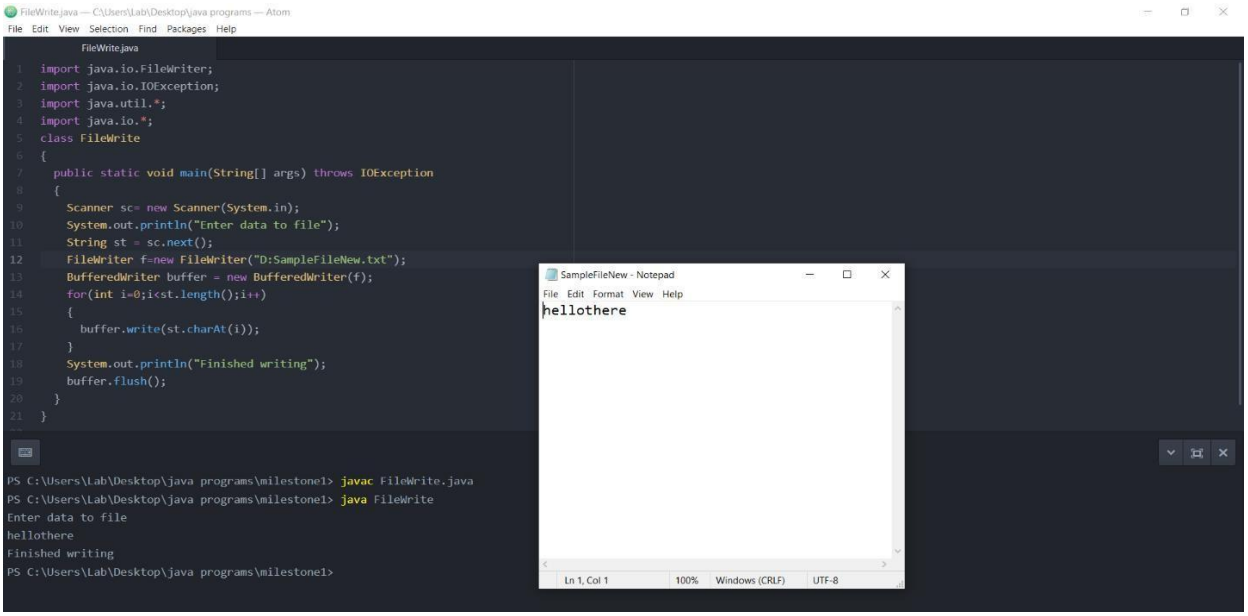
```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac DivSmall.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java DivSmall
Enter the number of elements
5
Enter the elements to the array
4
2
6
8
16
Resultant array is :
[2, 1, 3, 4, 8]
The program has been executed successfully
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

17. Write a java program to implement a constructor of the class, to print the instance variables value with respect to different objects.



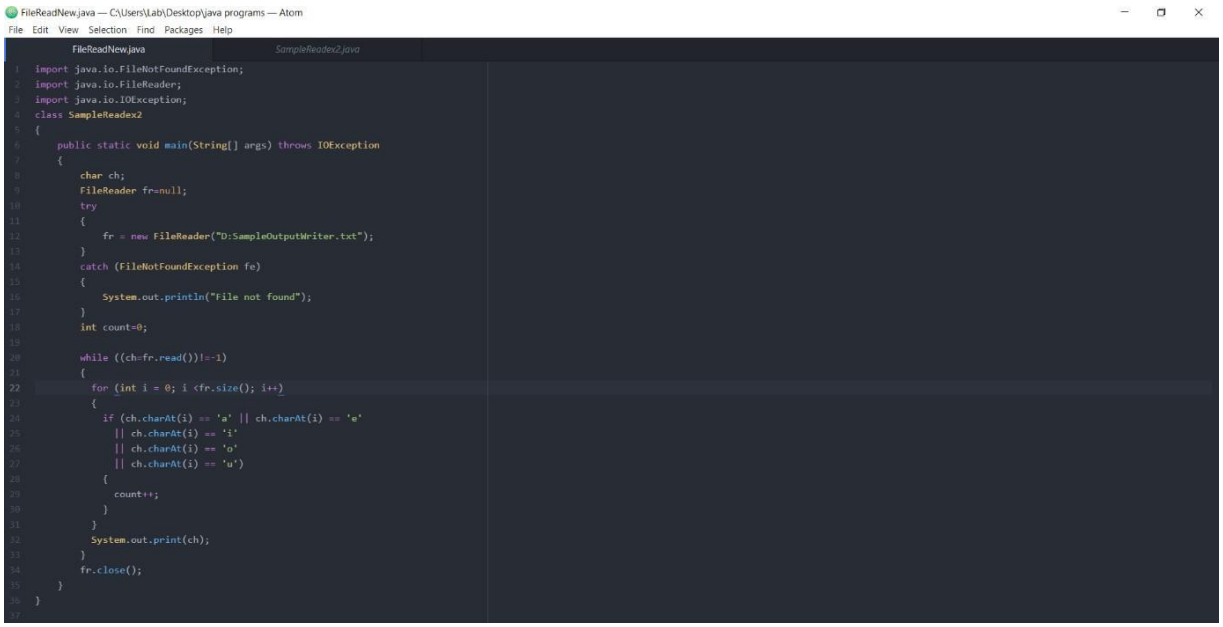
```
Student.java — C:\Users\Lab\Desktop\java programs — Atom
File Edit View Selection Find Packages Help
Student.java
1  import java.util.Scanner;
2  public class Student
3  {
4  public String name;
5  private int marks;
6  public Student (String stuName)
7  {
8    name = stuName;
9  }
10 public void setMarks(int stuMar)
11 {
12   marks = stuMar;
13 }
14 public void printStu()
15 {
16 System.out.println("Name: " + name );
17 System.out.println("Marks:" + marks);
18 }
19 public static void main(String args[])
20 {
21 Student StuOne = new Student("Ross");
22 Student StuTwo = new Student("Rachel");
23 Student StuThree = new Student("Phoebe");
24
25 StuOne.setMarks(98);
26 StuTwo.setMarks(89);
27 StuThree.setMarks(90);
28
29 StuOne.printStu();
30 StuTwo.printStu();
31 StuThree.printStu();
32 }}
milestone1\Student.java* 18:2                CRLF UTF-8 Java GitHub Git (0)
PS C:\Users\Lab\Desktop\java programs\milestone1> javac Student.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java Student.java
Name: Ross
Marks:98
Name: Rachel
Marks:89
Name: Phoebe
Marks:90
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

18. Write a java program to create a File at a particular location and to write to that particular file a String data which is taken as input from the user.



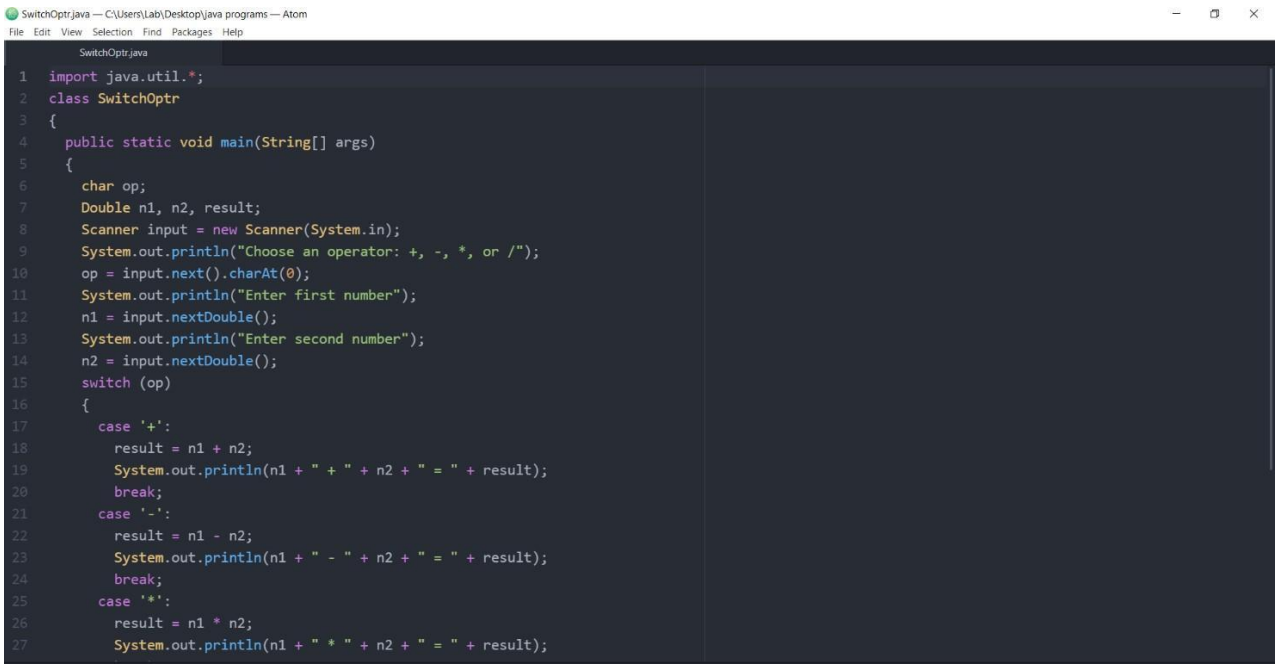
```
FileWrite.java — C:\Users\Lab\Desktop\java programs — Atom
File Edit View Selection Find Packages Help
FileWrite.java
1  import java.io.FileWriter;
2  import java.io.IOException;
3  import java.util.*;
4  import java.io.*;
5  class FileWrite
6  {
7    public static void main(String[] args) throws IOException
8    {
9      Scanner sc= new Scanner(System.in);
10     System.out.println("Enter data to file");
11     String st = sc.next();
12     FileWriter f=new FileWriter("D:SampleFileNew.txt");
13     BufferedWriter buffer = new BufferedWriter(f);
14     for(int i=0;i<st.length();i++)
15     {
16       buffer.write(st.charAt(i));
17     }
18     System.out.println("Finished writing");
19     buffer.flush();
20   }
21 }
PS C:\Users\Lab\Desktop\java programs\milestone1> javac FileWrite.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java FileWrite
Enter data to file
hellothere
Finished writing
PS C:\Users\Lab\Desktop\java programs\milestone1>

SampleFileNew - Notepad
File Edit Format View Help
hellothere
Ln 1, Col 1   100%   Windows (CRLF)   UTF-8
```

19. Write a program to read a file from a particular location and determine the number of vowels in that file.



```
import java.io.FileNotFoundException;
import java.io.FileReader;
import java.io.IOException;
class SampleReadex2
{
    public static void main(String[] args) throws IOException
    {
        char ch;
        FileReader fr=null;
        try
        {
            fr = new FileReader("D:SampleOutputWriter.txt");
        }
        catch (FileNotFoundException fe)
        {
            System.out.println("File not found");
        }
        int count=0;

        while ((ch=fr.read())!=-1)
        {
          for (int i = 0; i <fr.size(); i++)
          {
            if (ch.charAt(i) == 'a' || ch.charAt(i) == 'e'
              || ch.charAt(i) == 'i'
              || ch.charAt(i) == 'o'
              || ch.charAt(i) == 'u')
            {
              count++;
            }
          }
          System.out.print(ch);
        }
        fr.close();
    }
}
```

20. Write a program to take input of two numbers from the user. Now perform the particular arithmetic operation specified by the user and display the result.



```
import java.util.*;
class SwitchOptr
{
  public static void main(String[] args)
  {
    char op;
    Double n1, n2, result;
    Scanner input = new Scanner(System.in);
    System.out.println("Choose an operator: +, -, *, or /");
    op = input.next().charAt(0);
    System.out.println("Enter first number");
    n1 = input.nextDouble();
    System.out.println("Enter second number");
    n2 = input.nextDouble();
    switch (op)
    {
      case '+':
        result = n1 + n2;
        System.out.println(n1 + " + " + n2 + " = " + result);
        break;
      case '-':
        result = n1 - n2;
        System.out.println(n1 + " - " + n2 + " = " + result);
        break;
      case '*':
        result = n1 * n2;
        System.out.println(n1 + " * " + n2 + " = " + result);
```

```java
        System.out.println("Enter second number");
        n2 = input.nextDouble();
        switch (op)
        {
          case '+':
            result = n1 + n2;
            System.out.println(n1 + " + " + n2 + " = " + result);
            break;
          case '-':
            result = n1 - n2;
            System.out.println(n1 + " - " + n2 + " = " + result);
            break;
          case '*':
            result = n1 * n2;
            System.out.println(n1 + " * " + n2 + " = " + result);
            break;
          case '/':
            result = n1 / n2;
            System.out.println(n1 + " / " + n2 + " = " + result);
            break;
          default:
            System.out.println("Invalid operator!");
            break;
        }
      }
    }
```

```
Enter first number
Enter second number
3
2.0 + 3.0 = 5.0
PS C:\Users\Lab\Desktop\java programs\milestone1> java SwitchOptr
Choose an operator: +, -, *, or /
-
Enter first number
4
Enter second number
2
4.0 - 2.0 = 2.0
PS C:\Users\Lab\Desktop\java programs\milestone1> java SwitchOptr
Choose an operator: +, -, *, or /
*
Enter first number
6
Enter second number
1
6.0 * 1.0 = 6.0
PS C:\Users\Lab\Desktop\java programs\milestone1> java SwitchOptr
Choose an operator: +, -, *, or /
/
Enter first number
8
Enter second number
2
8.0 / 2.0 = 4.0
```

21. Create an array of 10 elements and print them using the for each loop.

ForEach.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

ForEach.java

```
import java.util.*;
class ForEach
{
  public static void main(String[] args)
  {
      Scanner sc = new Scanner(System.in);
      int[] arr = new int[10];
      System.out.println("Enter 10 elements");
      for (int i=0;i<10 ;i++ )
      {
        arr[i] = sc.nextInt();
      }
      for(int i:arr)
      {
        System.out.print(i+" ");
      }
  }
}

```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> java ForEach
Enter 10 elements
2
4
5
6
7
8
9
2
10
12
2 4 5 6 7 8 9 2 10 12
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

22. Take the number input from the console and add all the positive numbers. (Not to consider the negative number if entered).

SumPos.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

SumPos.java

```
import java.util.*;
class SumPos
{
public static void main(String[] args)
    {
      int n;
      Scanner sc =new Scanner(System.in);
      System.out.println("Enter the Number of elements :");
      n=sc.nextInt();
      int[] a= new int[n];
      System.out.println("Enter the  elements :");
      for (int i = 0; i < n; i++)
      {
          a[i] = sc.nextInt();
      }
      int sum=0;
      for (int i = 0; i < n; i++)
      {
          if(a[i] >=0)
          sum=sum+a[i];
      }
    System.out.println("Sum of positive numbers is : " +sum);
    }
  }
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac SumPos.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java SumPos
Enter the Number of elements :
4
Enter the  elements :
2
-4
3
-1
Sum of positive numbers is : 5
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

23. Create a labelled break and write a simple logic and execute the program.

BreakLabel.java — C:\Users\Lab\Desktop\java programs — Atom

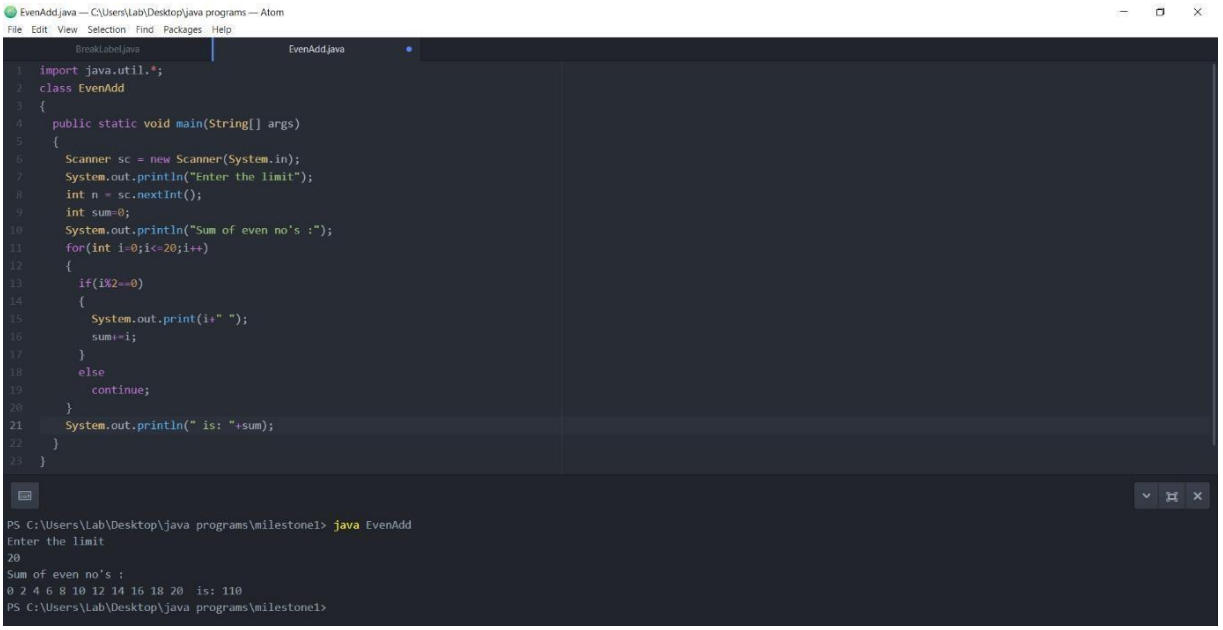
File Edit View Selection Find Packages Help

BreakLabel.java

```
class BreakLabel
{
  public static void main(String[] args)
  {
    int i=10;
    loop1:
    while(i<20)
    {
       if(i==15)
       break loop1;
       System.out.println("i ="+i);
       i++;
    }
System.out.println("Out of the loop");
  }
}
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac BreakLabel.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java BreakLabel
i =10
i =11
i =12
i =13
i =14
Out of the loop
```

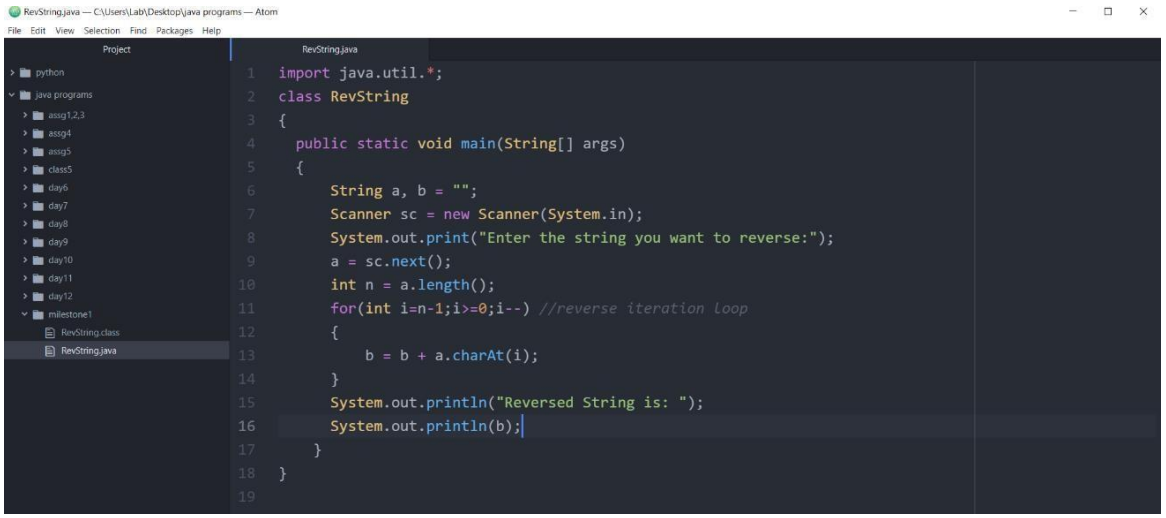
24. Do the addition of around 10 even numbers, but use the continue statement in the logic.



```
import java.util.*;
class EvenAdd
{
  public static void main(String[] args)
  {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter the limit");
    int n = sc.nextInt();
    int sum=0;
    System.out.println("Sum of even no's :");
    for(int i=0;i<=20;i++)
    {
      if(i%2==0)
      {
        System.out.print(i+" ");
        sum+=i;
      }
      else
        continue;
    }
    System.out.println(" is: "+sum);
  }
}
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> java EvenAdd
Enter the limit
20
Sum of even no's :
0 2 4 6 8 10 12 14 16 18 20  is: 110
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

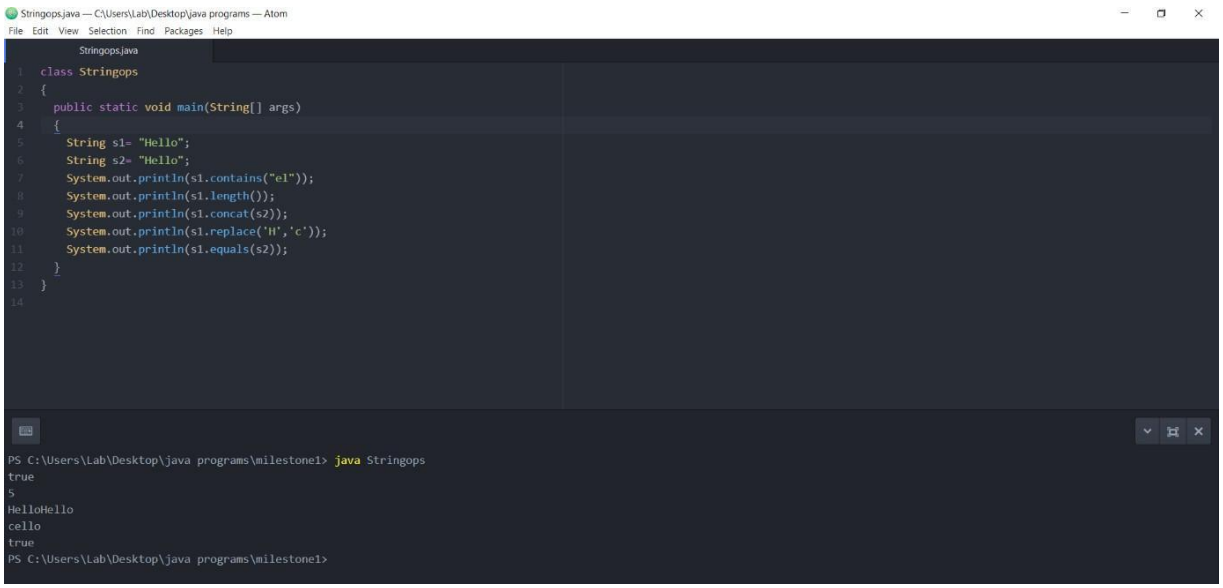
25. Write a program to reverse the String (use char [] or String built in method)



```
import java.util.*;
class RevString
{
  public static void main(String[] args)
  {
      String a, b = "";
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter the string you want to reverse:");
      a = sc.next();
      int n = a.length();
      for(int i=n-1;i>=0;i--) //reverse iteration loop
      {
          b = b + a.charAt(i);
      }
      System.out.println("Reversed String is: ");
      System.out.println(b);
    }
}
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac RevString.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java RevString
Enter the string you want to reverse:Adithya
Reversed String is:
ayhtidA
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

26. Write programs to depict the usage of contains (), length (), replace (), concat (), equals ().



27. Create an inheritance class. (Super class as Vehicle and 2 subclasses Car and Bike and inherit the Vehicle class methods)

```
public class VehicleProgram
{
  public static void main(String[] args)
  {
    Car x= new Car();
    x.drive();
    x.drive2();
    System.out.println();
    Bike b = new Bike();
    b.drive();
    b.drive1();
  }
}
class Vehicle
{
  void drive()
  {
    System.out.println("This is Vehicle");
  }
}
class Bike extends Vehicle
{
  void drive1()
  {
  System.out.println("This is Bike");
  }
}
class Car extends Vehicle
{
  void drive2()
  {
  System.out.println("This is Car");
  }
}
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac VehicleProgram.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java VehicleProgram
This is Vehicle
This is Car

This is Vehicle
This is Bike
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

28. Depict programmatically the Method overloading and Method overriding concepts.

MethOL.java — C:\Users\Lab\Desktop\java programs — Atom

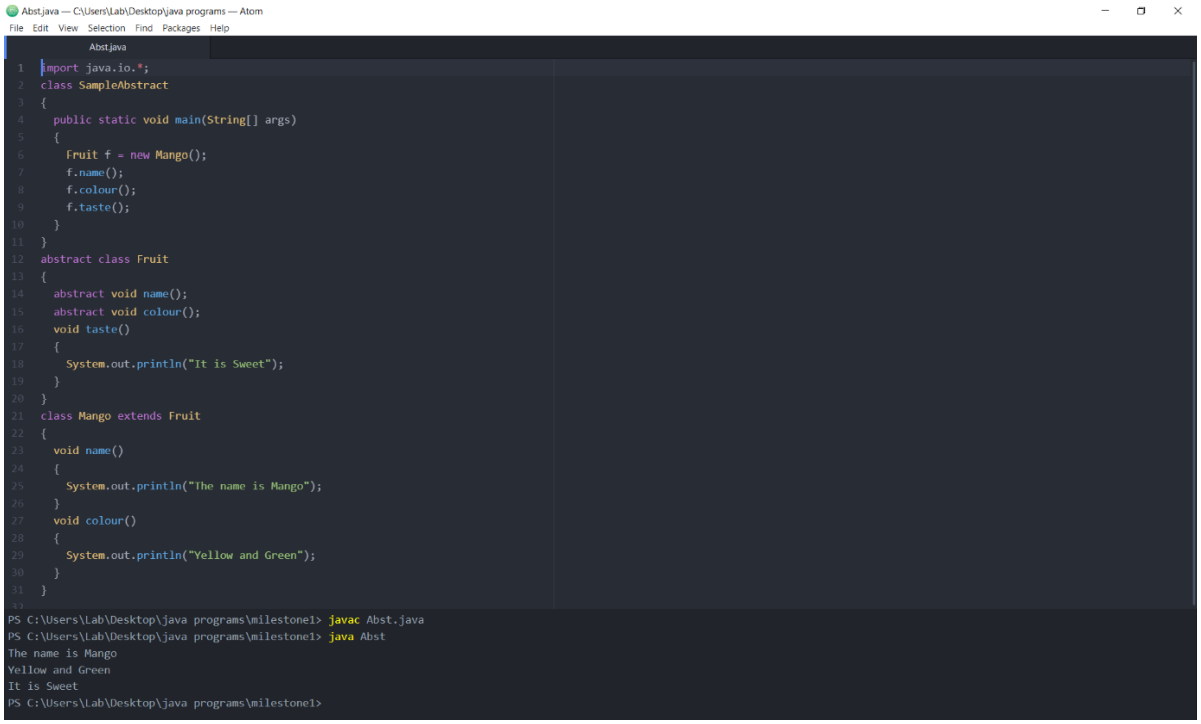
File Edit View Selection Find Packages Help

MethOL.java

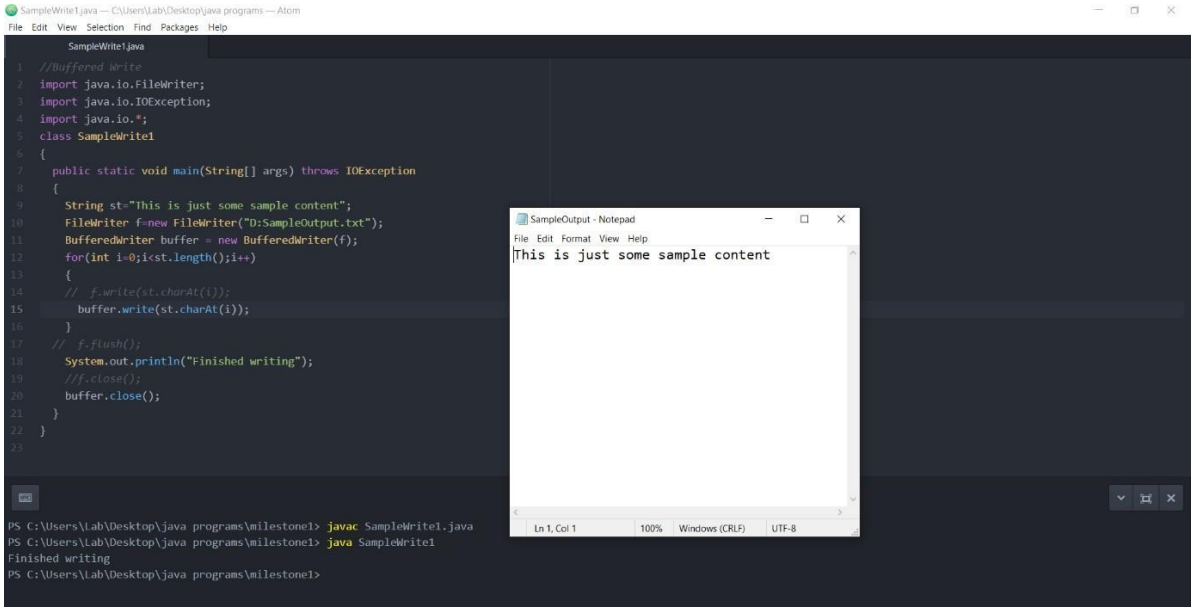
```java
class MethOL
{
  public static void main(String[] args)
  {
    add(100,20);
    add(10,12.5);
    University u = new Uoc();
    u.display();
    u.location();
  }
  static class University
  { static void display()
    {
      System.out.println("University invoked");
    }
    static void location()
    {
      System.out.println("Throughout Kerala");
    }
  }
  static class Uoc extends University
  {
  static  void display()
    {
      System.out.println("University of Calicut invoked");
    }
    static void location()
    {
      System.out.println("In Malappuram");
    }
  }

  static void add(int a,int b)
  {
    System.out.println(a+b);
  }
  static void add(double a,double b)
  {
    System.out.println(a+b);
  }
}
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac MethOL.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java MethOL
120
22.5
University invoked
Throughout Kerala
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

29. Create an abstract class and extend that class and try to create the object of the abstract class in a program and execute.



30. Write a java program to write the data into a file and read back using FileOutputStream/FileInputStream and also try the same using the BufferedReader and BufferedWriter.



SampRead.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

SampRead.java

```java
import java.io.IOException;
import java.io.FileReader;
import java.io.FileNotFoundException;
import java.io.File;
import java.util.*;
class SampRead
{
  public static void main(String[] args)throws IOException
  {
    File file1=new File("D:SampleOutput.txt");
    int len=(int) file1.length();
    try
    {
      FileReader fr=new FileReader(file1);
      char[] x=new char[len];
      fr.read(x);
      String filecontent=new String(x);
      System.out.println(filecontent);
      int count = 0;
    }
    catch(FileNotFoundException e)
    {
      System.out.println("File not found");
    }
    catch(Exception e)
    {
      System.out.println(e);
    }
  }
}
```

```
PS C:\Users\Lab\Desktop\java programs\milestone1> javac SampRead.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java SampRead
File not found
PS C:\Users\Lab\Desktop\java programs\milestone1> java SampRead
File not found
PS C:\Users\Lab\Desktop\java programs\milestone1> javac SampRead.java
PS C:\Users\Lab\Desktop\java programs\milestone1> java SampRead
This is just some sample content
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

32.Write a java program to copy data from one file to another file.

CopyFile.java — C:\Users\Lab\Desktop\java programs — Atom

File Edit View Selection Find Packages Help

CopyFile.java

```java
import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.IOException;
public class CopyFile
{
    public static void main(String[] args)
    {
      FileInputStream instream = null;
      FileOutputStream outstream = null;
      try{
          File infile =new File("D:SampleOutput.txt");
          File outfile =new File("D:Sample.txt");

          instream = new FileInputStream(infile);
          outstream = new FileOutputStream(outfile);

          byte[] buffer = new byte[1024];

          int length;
          while ((length = instream.read(buffer)) > 0)
          {
            outstream.write(buffer, 0, length);
          }
          instream.close();
          outstream.close();
          System.out.println("File copied successfully!!");
      }
      catch(IOException e)
      {
        e.printStackTrace();
       }
    }
}
```

SampleOutput - Notepad

File Edit Format View Help

This is just some sample content

Windows (CRLF) UTF-8

Sample - Notepad

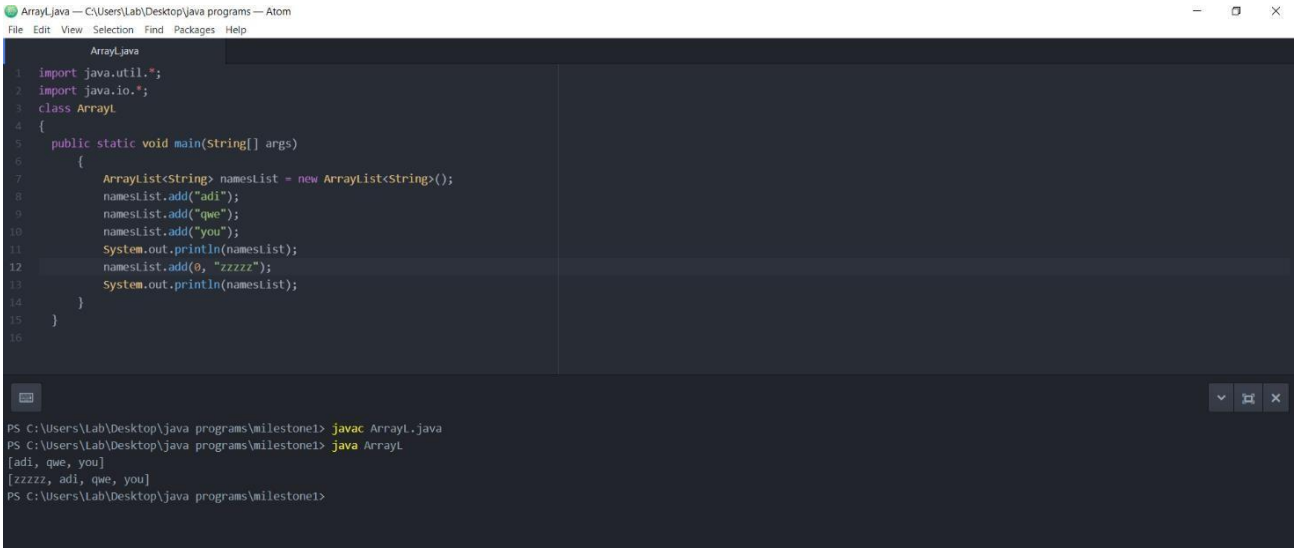
File Edit Format View Help

This is just some sample content

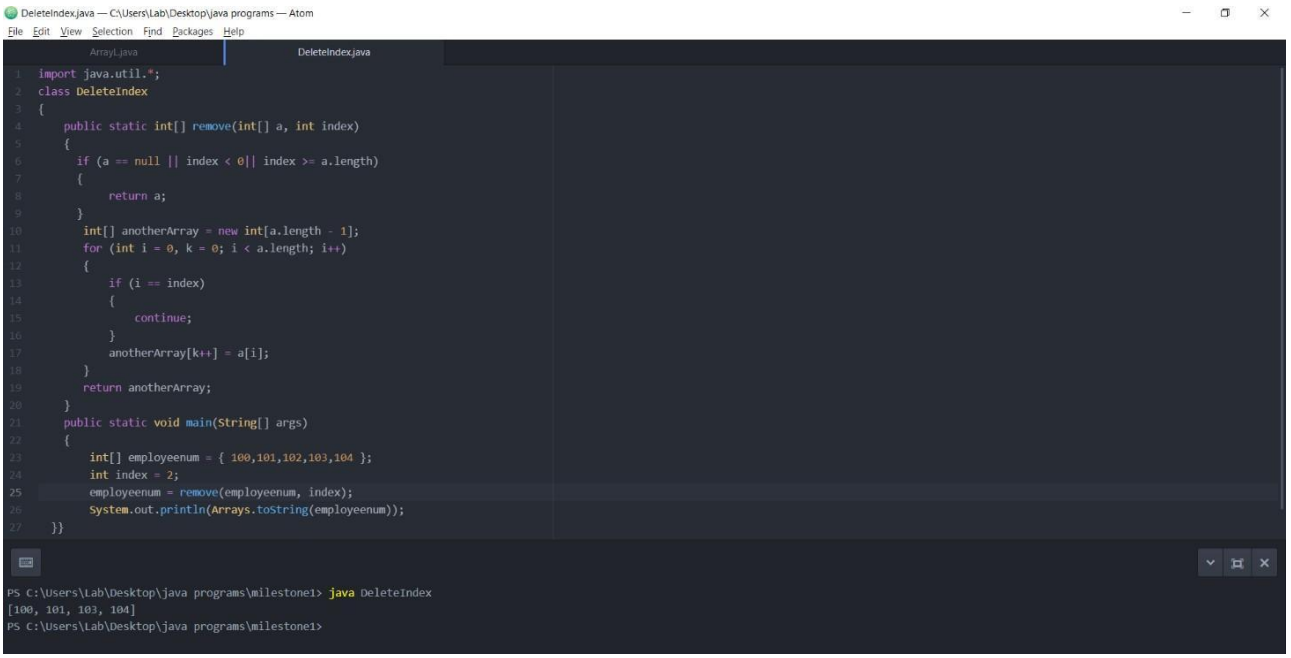
Ln 1, Col 1 100% Windows (CRLF) UTF-8

```
PS C:\Users\Lab\Desktop\java programs\milestone1> java CopyFile
File copied successfully!!
PS C:\Users\Lab\Desktop\java programs\milestone1>
```

33. How to add an element at a specific position in an ArrayList (create using <>)



34. Create an array of employee objects and iterate through it and remove the object at the 2nd position.



===