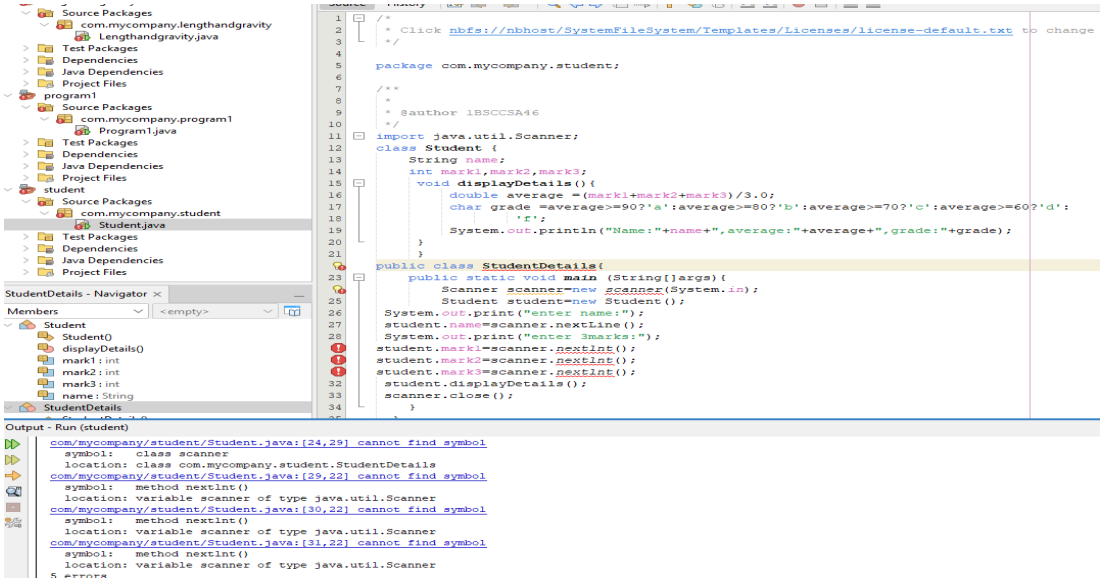
Program1

```
import java.util.Scanner;
class Student {
String name;
int mark1, mark2, mark3;
void displayDetails() {
double average = (mark1 + mark2 + mark3) / 3.0;
char grade = average &gt;= 90 ? &#39;A&#39; : average &gt;= 80 ? &#39;B&#39; : average
&gt;= 70 ? &#39;C&#39; : average &gt;=
60 ? &#39;D&#39; : &#39;F&#39;;
System.out.println(&quot;Name: &quot; + name + &quot;, Average: &quot; + average + &quot;,
Grade: &quot; + grade);
}
}
public class StudentDetails {
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
Student student = new Student();
System.out.print(&quot;Enter name: &quot;);
student.name = scanner.nextLine();
System.out.print(&quot;Enter 3 marks: &quot;);
student.mark1 = scanner.nextInt();
student.mark2 = scanner.nextInt();
student.mark3 = scanner.nextInt();
student.displayDetails();
scanner.close();
}
}
```

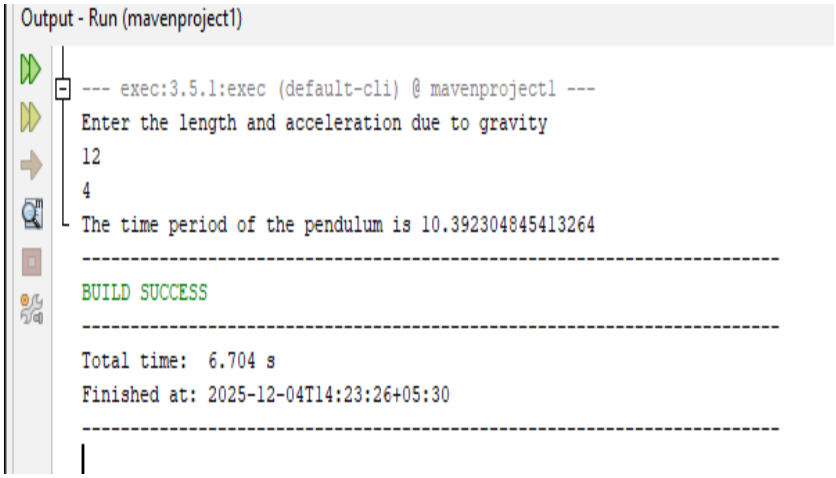
Output



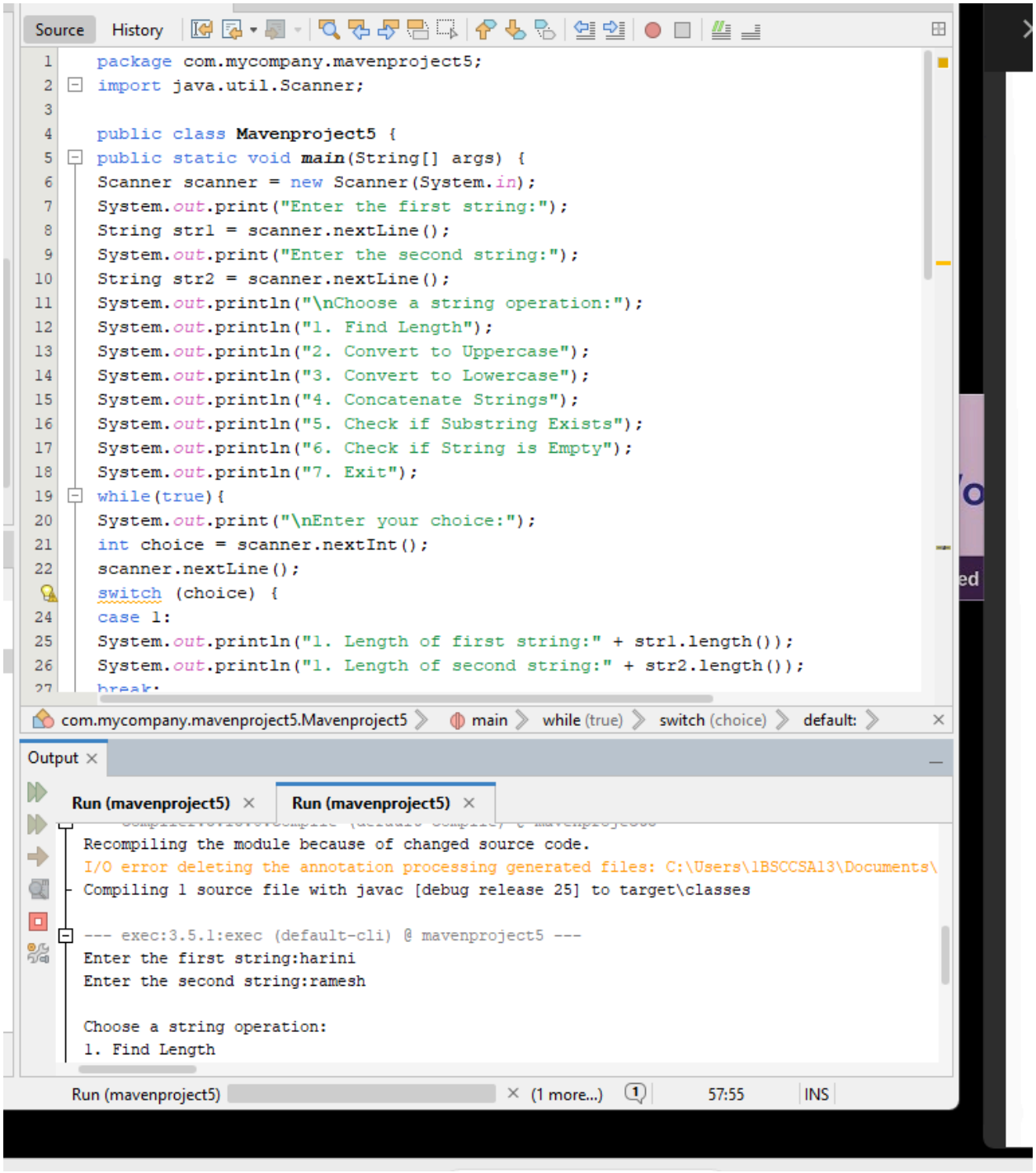
Program2

```
package com.mycompany.mavenproject1;
import java.util.*;
class Mavenproject1{
public static void main(String args[]){
Scanner sc = new Scanner(System.in);
final double Pi = 22/7;
System.out.println("Enter the length and acceleration due to gravity");
int l = sc.nextInt();
int g = sc.nextInt();
double t = 2*Pi*Math.sqrt(l/g);
System.out.println("The time period of the pendulum is "+t);

    }
}
```

Output


Output - Run (mavenproject1)
--- exec:3.5.1:exec (default-cli) @ mavenproject1 ---
Enter the length and acceleration due to gravity
12
4
The time period of the pendulum is 10.392304845413264
BUILD SUCCESS
Total time: 6.704 s
Finished at: 2025-12-04T14:23:26+05:30

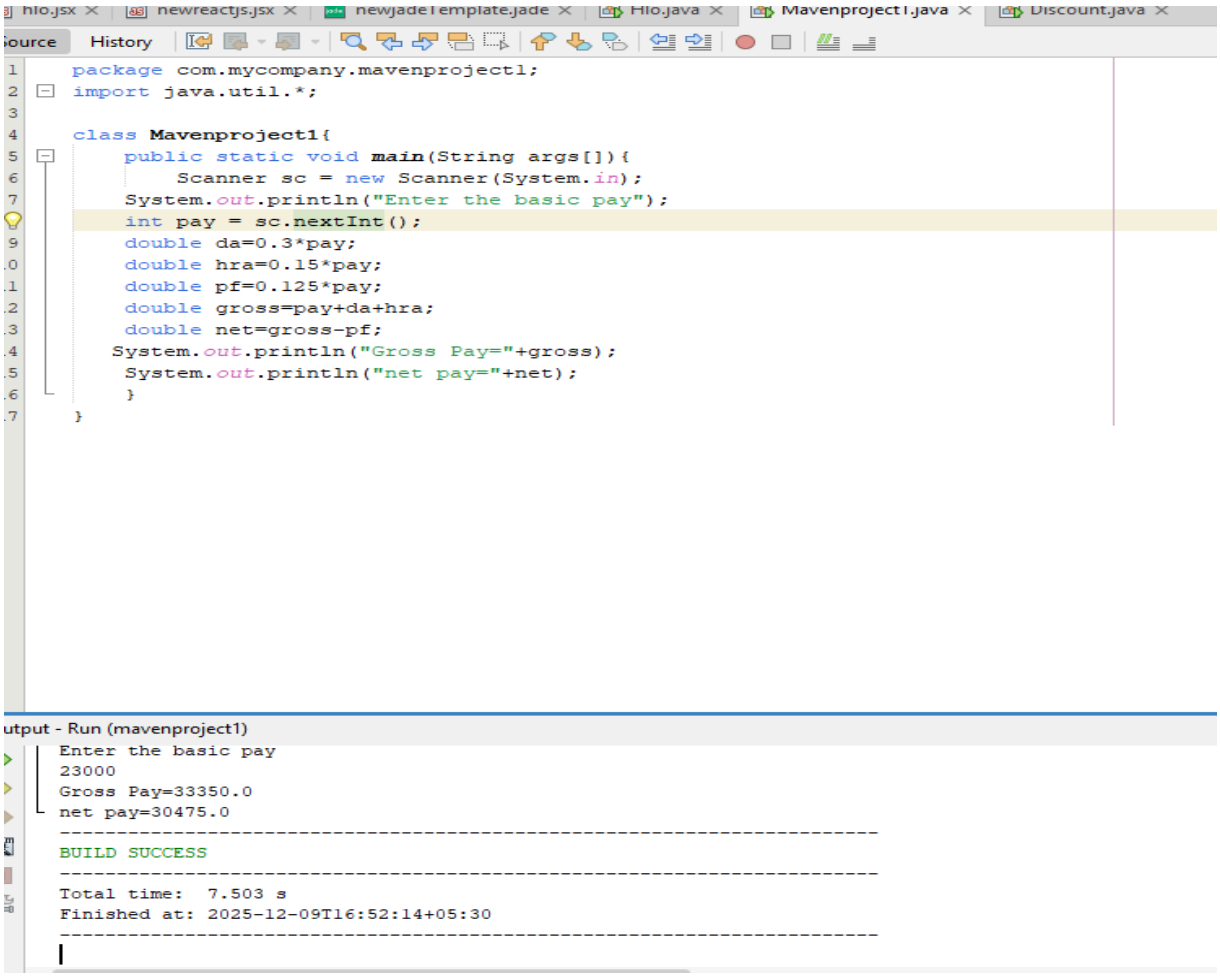
Program3



```java
package com.mycompany.mavenproject5;
import java.util.Scanner;

public class Mavenproject5 {
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
System.out.print("Enter the first string:");
String str1 = scanner.nextLine();
System.out.print("Enter the second string:");
String str2 = scanner.nextLine();
System.out.println("\nChoose a string operation:");
System.out.println("1. Find Length");
System.out.println("2. Convert to Uppercase");
System.out.println("3. Convert to Lowercase");
System.out.println("4. Concatenate Strings");
System.out.println("5. Check if Substring Exists");
System.out.println("6. Check if String is Empty");
System.out.println("7. Exit");
while(true){
System.out.print("\nEnter your choice:");
int choice = scanner.nextInt();
scanner.nextLine();
switch (choice) {
case 1:
System.out.println("1. Length of first string:" + str1.length());
System.out.println("1. Length of second string:" + str2.length());
break;
```

```
Recompiling the module because of changed source code.
I/O error deleting the annotation processing generated files: C:\Users\1BSCCSA13\Documents\
Compiling 1 source file with javac [debug release 25] to target\classes

--- exec:3.5.1:exec (default-cli) @ mavenproject5 ---
Enter the first string:harini
Enter the second string:ramesh

Choose a string operation:
1. Find Length
```

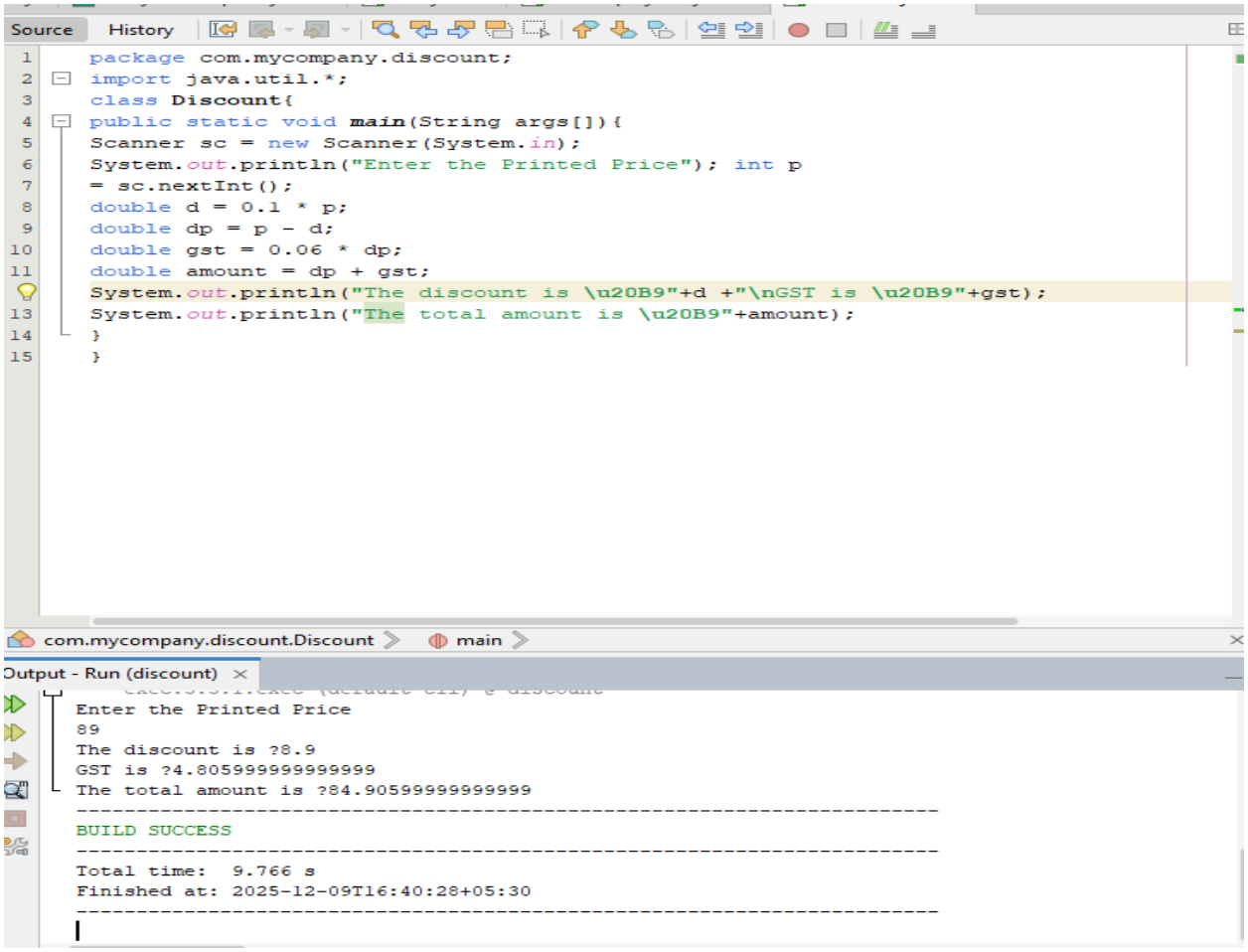
Program4



```
package com.mycompany.mavenproject1;
import java.util.*;

class Mavenproject1{
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
    System.out.println("Enter the basic pay");
    int pay = sc.nextInt();
    double da=0.3*pay;
    double hra=0.15*pay;
    double pf=0.125*pay;
    double gross=pay+da+hra;
    double net=gross-pf;
   System.out.println("Gross Pay="+gross);
    System.out.println("net pay="+net);
    }
}
```

```
Enter the basic pay
23000
Gross Pay=33350.0
net pay=30475.0
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  7.503 s
Finished at: 2025-12-09T16:52:14+05:30
------------------------------------------------------------------------
```

Program5



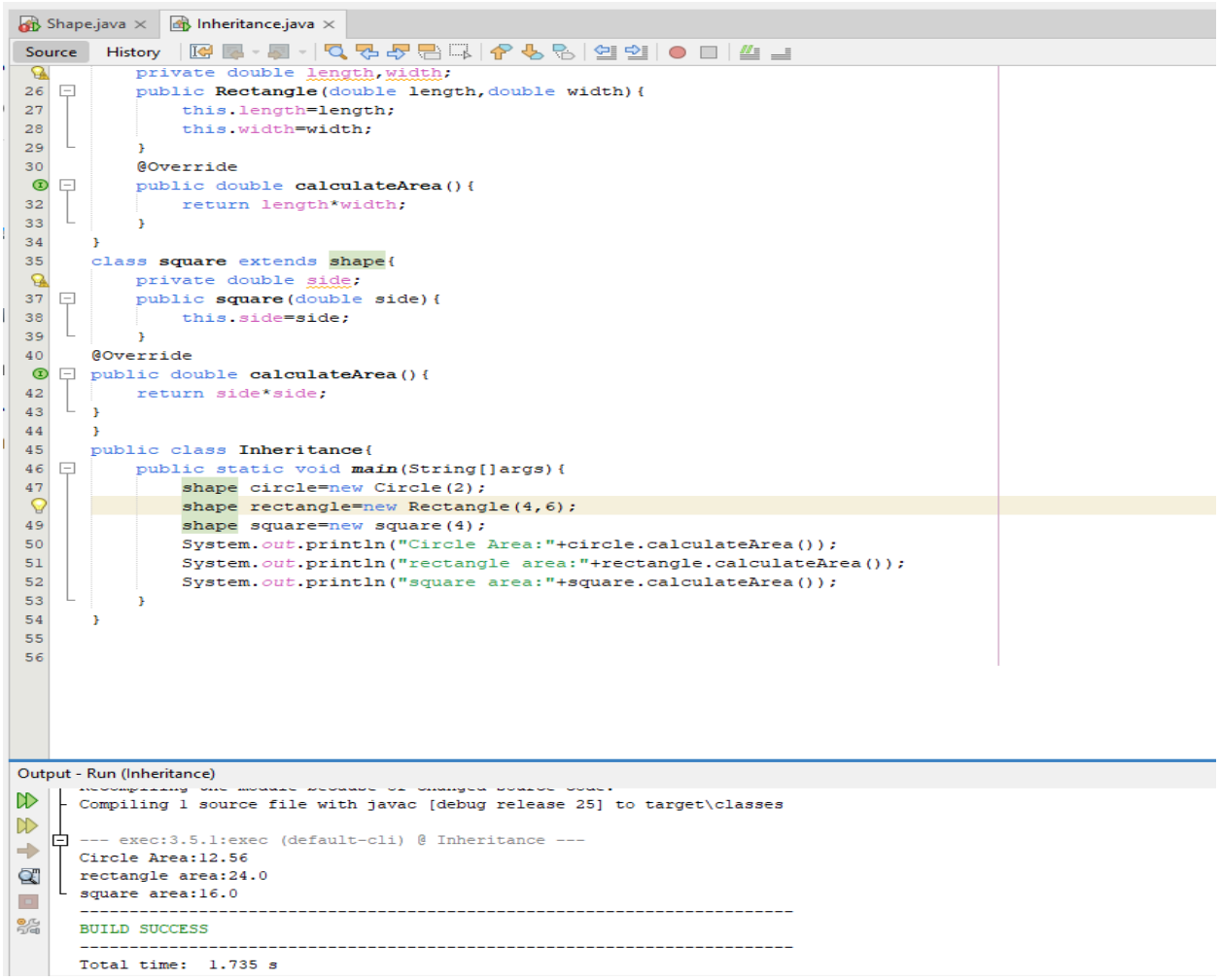
```
Source  History
1  package com.mycompany.discount;
2  import java.util.*;
3  class Discount{
4  public static void main(String args[]){
5  Scanner sc = new Scanner(System.in);
6  System.out.println("Enter the Printed Price"); int p
7  = sc.nextInt();
8  double d = 0.1 * p;
9  double dp = p - d;
10 double gst = 0.06 * dp;
11 double amount = dp + gst;
12 System.out.println("The discount is \u20B9"+d +"\nGST is \u20B9"+gst);
13 System.out.println("The total amount is \u20B9"+amount);
14 }
15 }
```

com.mycompany.discount.Discount > main >

Output - Run (discount)

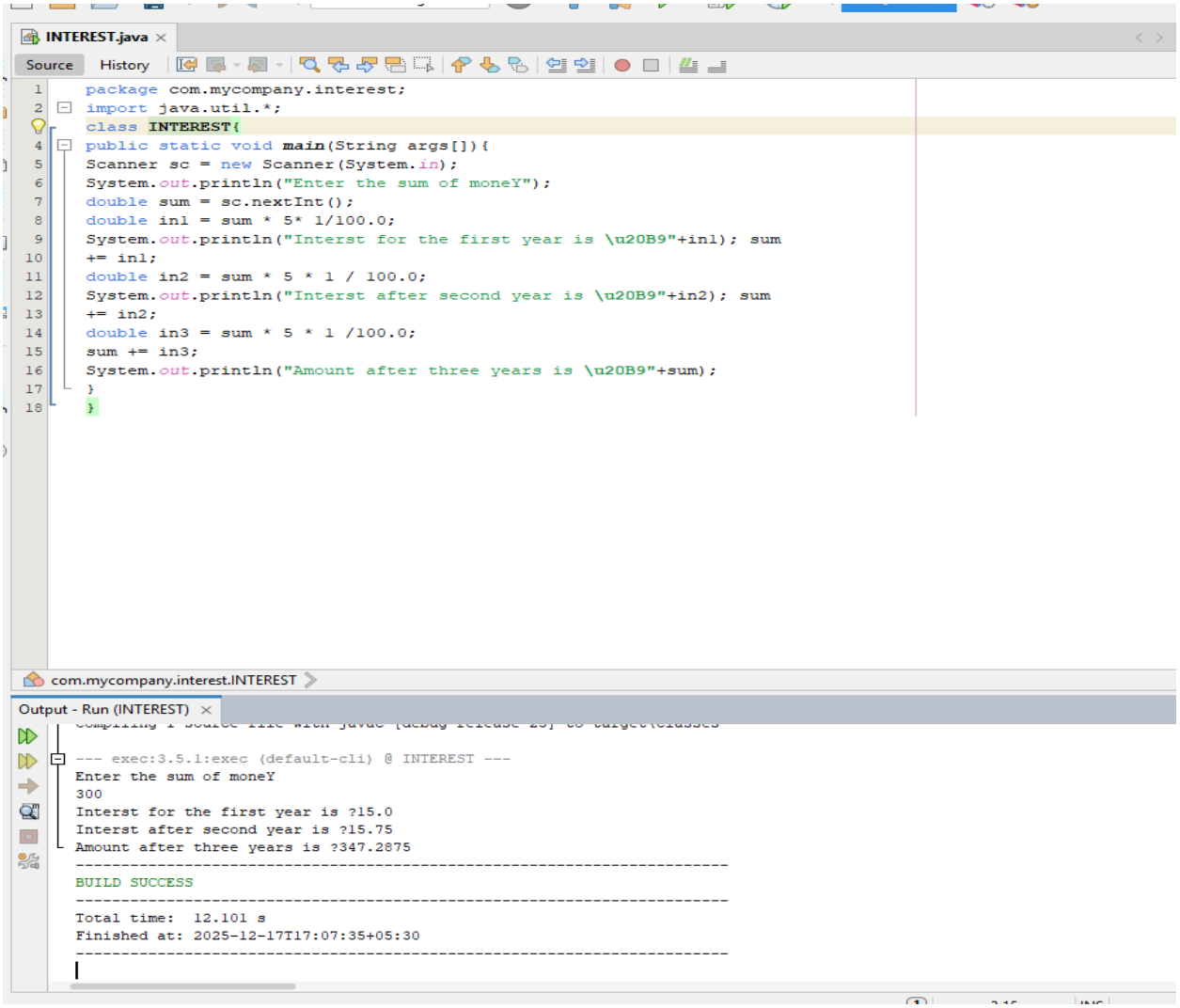
```
Enter the Printed Price
89
The discount is ?8.9
GST is ?4.805999999999999
The total amount is ?84.90599999999999
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  9.766 s
Finished at: 2025-12-09T16:40:28+05:30
------------------------------------------------------------------------
```

Program6

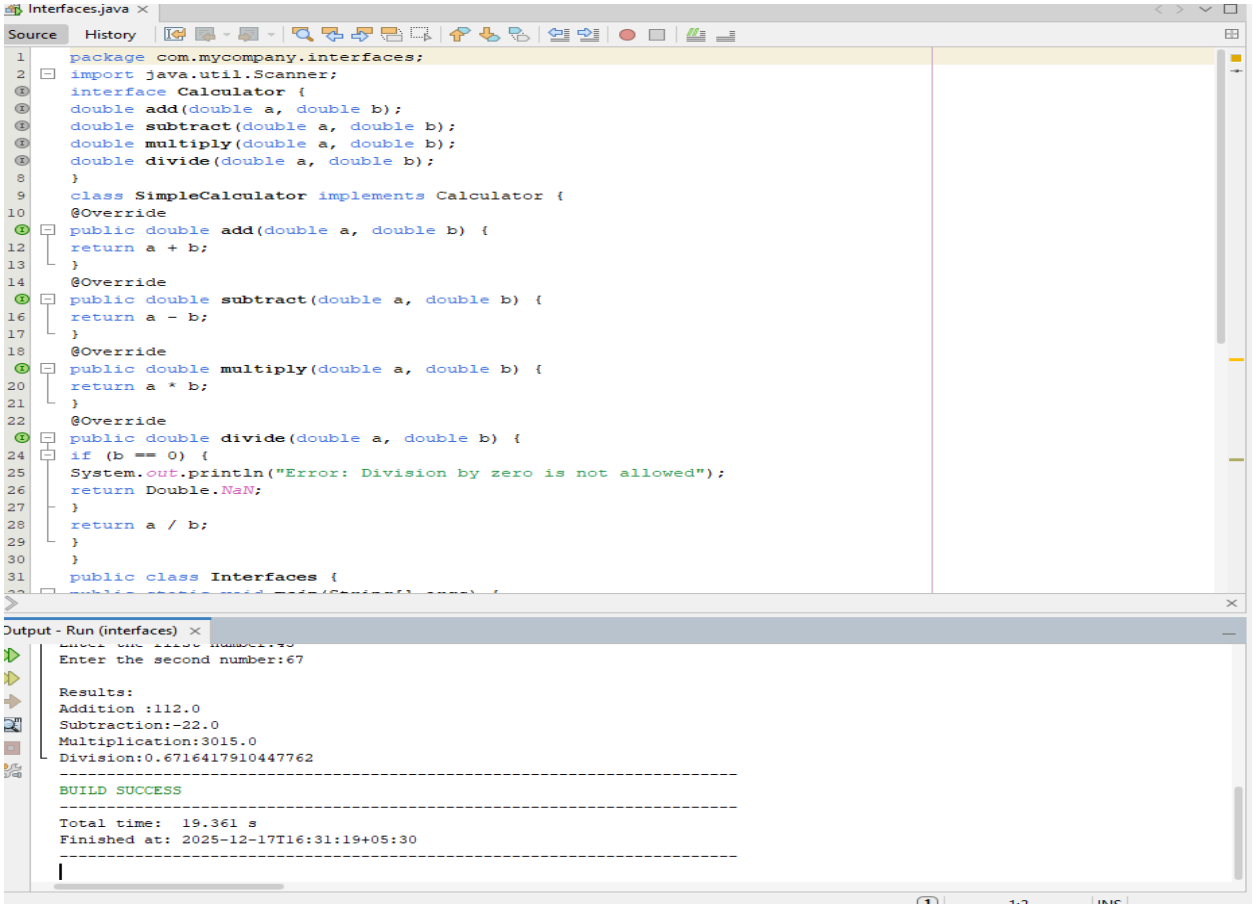


```
Shape.java | Inheritance.java
Source | History
26      private double length,width;
27      public Rectangle(double length,double width){
28          this.length=length;
29          this.width=width;
30      }
32      @Override
33      public double calculateArea(){
34          return length*width;
35      }
37  }
38  class square extends shape{
39      private double side;
40      public square(double side){
42          this.side=side;
43      }
44  @Override
45  public double calculateArea(){
46      return side*side;
47  }
49  }
50  public class Inheritance{
51      public static void main(String[]args){
52          shape circle=new Circle(2);
53          shape rectangle=new Rectangle(4,6);
54          shape square=new square(4);
55          System.out.println("Circle Area:"+circle.calculateArea());
56          System.out.println("rectangle area:"+rectangle.calculateArea());
          System.out.println("square area:"+square.calculateArea());
      }
  }

Output - Run (Inheritance)
Compiling 1 source file with javac [debug release 25] to target\classes

--- exec:3.5.1:exec (default-cli) @ Inheritance ---
Circle Area:12.56
rectangle area:24.0
square area:16.0
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  1.735 s
```

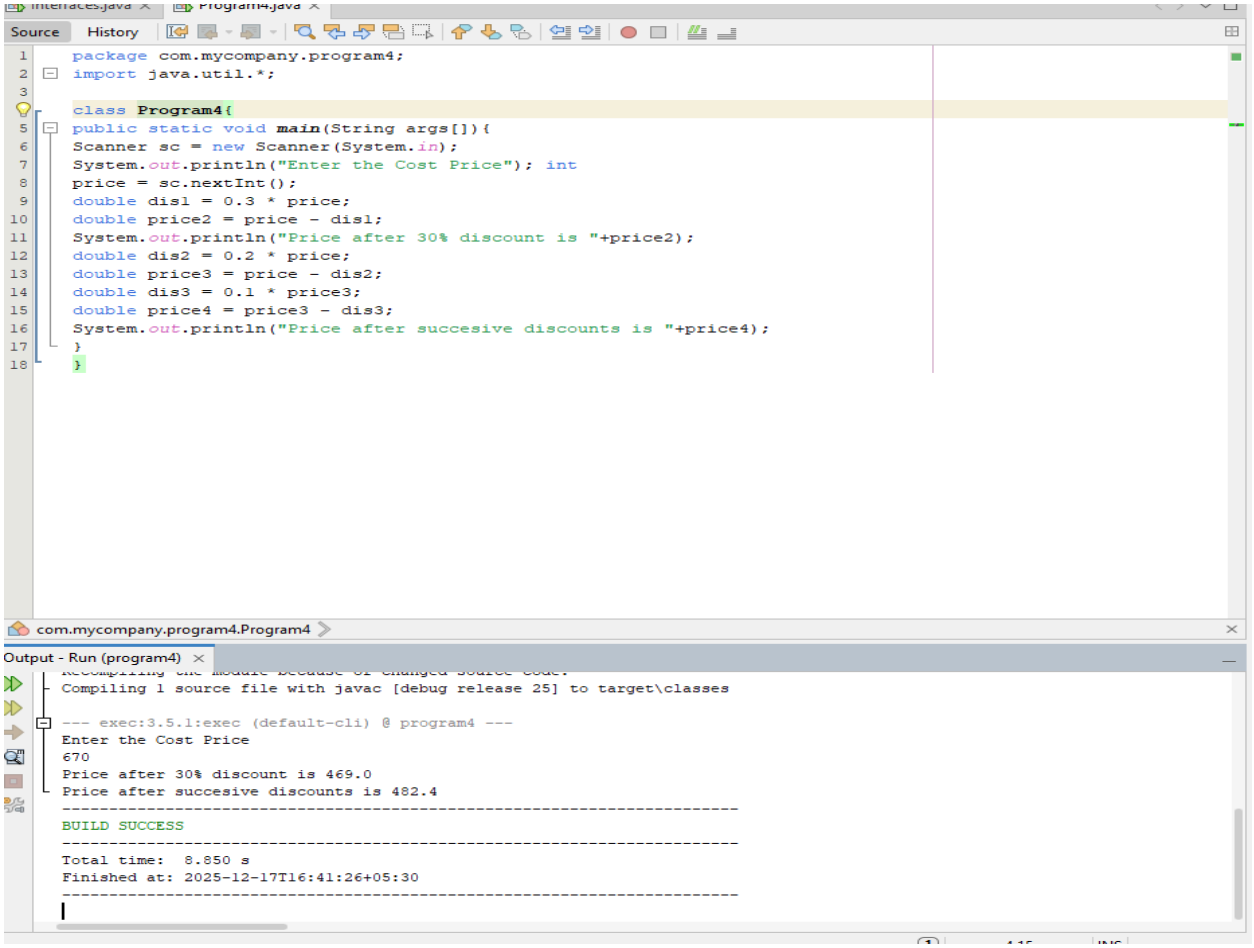
Program7


INTEREST.java
Source
History
1 package com.mycompany.interest;
2 import java.util.*;
3 class INTERESTE
4 public static void main(String args[]){
5 Scanner sc = new Scanner(System.in);
6 System.out.println("Enter the sum of moneY");
7 double sum = sc.nextInt();
8 double in1 = sum * 5* 1/100.0;
9 System.out.println("Interst for the first year is \u20B9"+in1); sum
10 += in1;
11 double in2 = sum * 5 * 1 / 100.0;
12 System.out.println("Interst after second year is \u20B9"+in2); sum
13 += in2;
14 double in3 = sum * 5 * 1 /100.0;
15 sum += in3;
16 System.out.println("Amount after three years is \u20B9"+sum);
17 }
18 }
com.mycompany.interest.INTEREST
Output - Run (INTEREST)
--- exec:3.5.1:exec (default-cli) @ INTEREST ---
Enter the sum of moneY
300
Interst for the first year is ?15.0
Interst after second year is ?15.75
Amount after three years is ?347.2875
BUILD SUCCESS
Total time: 12.101 s
Finished at: 2025-12-17T17:07:35+05:30

Program8


Interfaces.java
Source
History
package com.mycompany.interfaces;
import java.util.Scanner;
interface Calculator {
double add(double a, double b);
double subtract(double a, double b);
double multiply(double a, double b);
double divide(double a, double b);
}
class SimpleCalculator implements Calculator {
@Override
public double add(double a, double b) {
return a + b;
}
@Override
public double subtract(double a, double b) {
return a - b;
}
@Override
public double multiply(double a, double b) {
return a * b;
}
@Override
public double divide(double a, double b) {
if (b == 0) {
System.out.println("Error: Division by zero is not allowed");
return Double.NaN;
}
return a / b;
}
}
public class Interfaces {
Output - Run (interfaces)
Enter the second number:67
Results:
Addition :112.0
Subtraction:-22.0
Multiplication:3015.0
Division:0.6716417910447762
BUILD SUCCESS
Total time: 19.361 s
Finished at: 2025-12-17T16:31:19+05:30

Program9



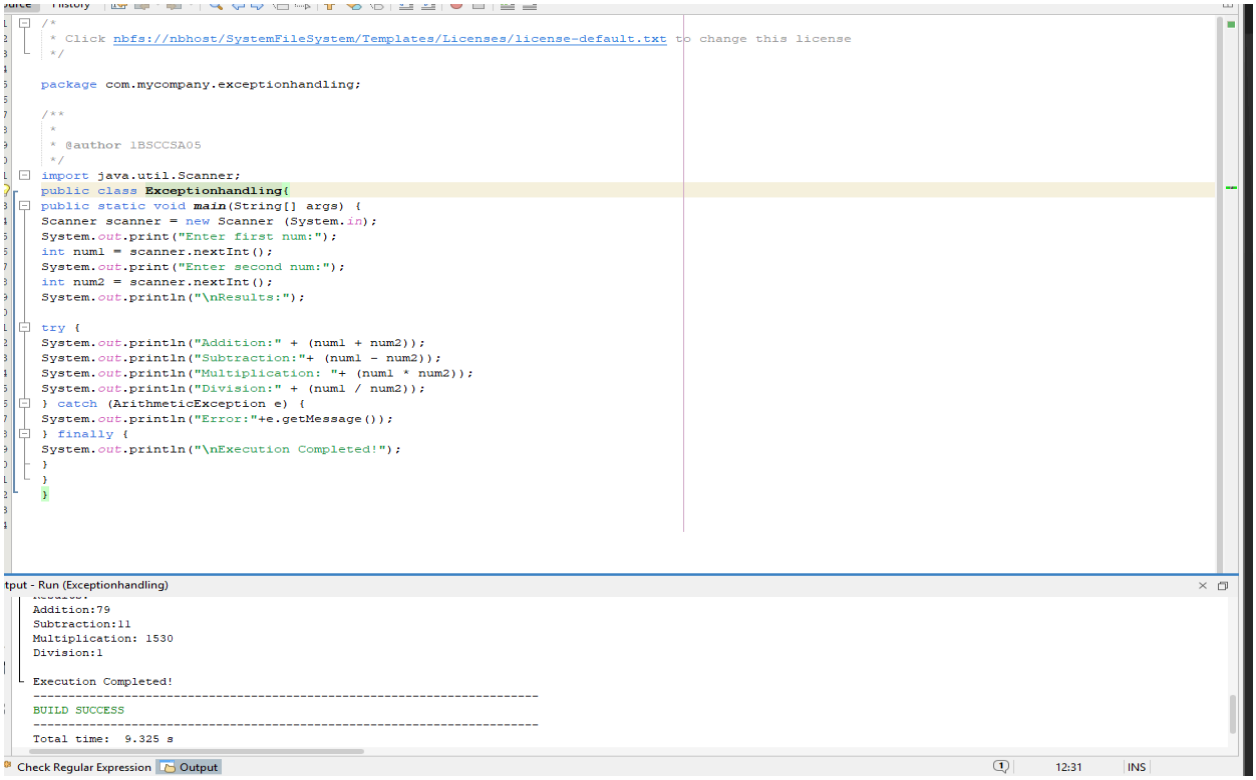
```java
package com.mycompany.program4;
import java.util.*;

class Program4{
public static void main(String args[]){
Scanner sc = new Scanner(System.in);
System.out.println("Enter the Cost Price"); int
price = sc.nextInt();
double dis1 = 0.3 * price;
double price2 = price - dis1;
System.out.println("Price after 30% discount is "+price2);
double dis2 = 0.2 * price;
double price3 = price - dis2;
double dis3 = 0.1 * price3;
double price4 = price3 - dis3;
System.out.println("Price after succesive discounts is "+price4);
}
}
```

com.mycompany.program4.Program4

Output - Run (program4)

```
Compiling 1 source file with javac [debug release 25] to target\classes

--- exec:3.5.1:exec (default-cli) @ program4 ---
Enter the Cost Price
670
Price after 30% discount is 469.0
Price after succesive discounts is 482.4
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  8.850 s
Finished at: 2025-12-17T16:41:26+05:30
------------------------------------------------------------------------
```

Program10



```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 */

package com.mycompany.exceptionhandling;

/**
 *
 * @author 1BSCCSA05
 */
import java.util.Scanner;
public class Exceptionhandling{
public static void main(String[] args) {
Scanner scanner = new Scanner (System.in);
System.out.print("Enter first num:");
int num1 = scanner.nextInt();
System.out.print("Enter second num:");
int num2 = scanner.nextInt();
System.out.println("\nResults:");

try {
System.out.println("Addition:" + (num1 + num2));
System.out.println("Subtraction:"+ (num1 - num2));
System.out.println("Multiplication: "+ (num1 * num2));
System.out.println("Division:" + (num1 / num2));
} catch (ArithmeticException e) {
System.out.println("Error:"+e.getMessage());
} finally {
System.out.println("\nExecution Completed!");
}
}
}
```

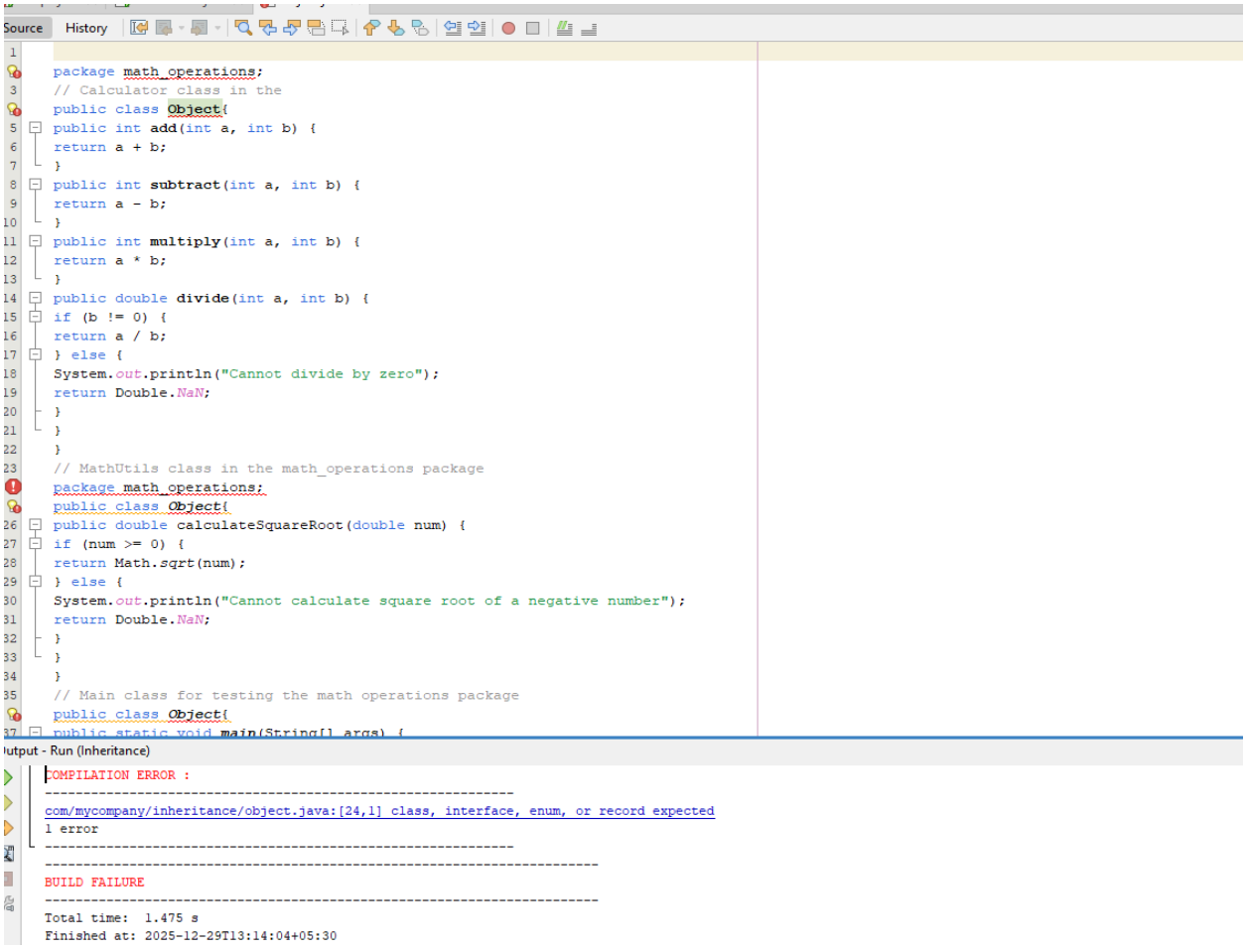
```
tput - Run (Exceptionhandling)
Addition:79
Subtraction:11
Multiplication: 1530
Division:1

Execution Completed!
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  9.325 s
Check Regular Expression  Output  12:31  INS
```

Program11

```java
package com.mycompany.compound;

/**
 *
 * @author 1BSCCSA05
 */
import java.util.*;
class Compound{
public static void main(String args[]){
Scanner sc = new Scanner(System.in);
System.out.println("Enter the sum of money");
double sum = sc.nextInt();
double in1 = sum * 5* 1/100.0;
System.out.println("Interst for the first year is \u20B9"+in1); sum
+= in1;
double in2 = sum * 5 * 1 / 100.0;
System.out.println("Interst after second year is \u20B9"+in2); sum
+= in2;
double in3 = sum * 5 * 1 /100.0;
sum += in3;
System.out.println("Amount after three years is \u20B9"+sum);
}
}
```

```
put - Run (compound)
--- exec:3.5.1:exec (default-cli) @ compound ---
Enter the sum of money
20000
Interst for the first year is ?1000.0
Interst after second year is ?1050.0
Amount after three years is ?23152.5
------------------------------------------------------------------------
BUILD SUCCESS
```

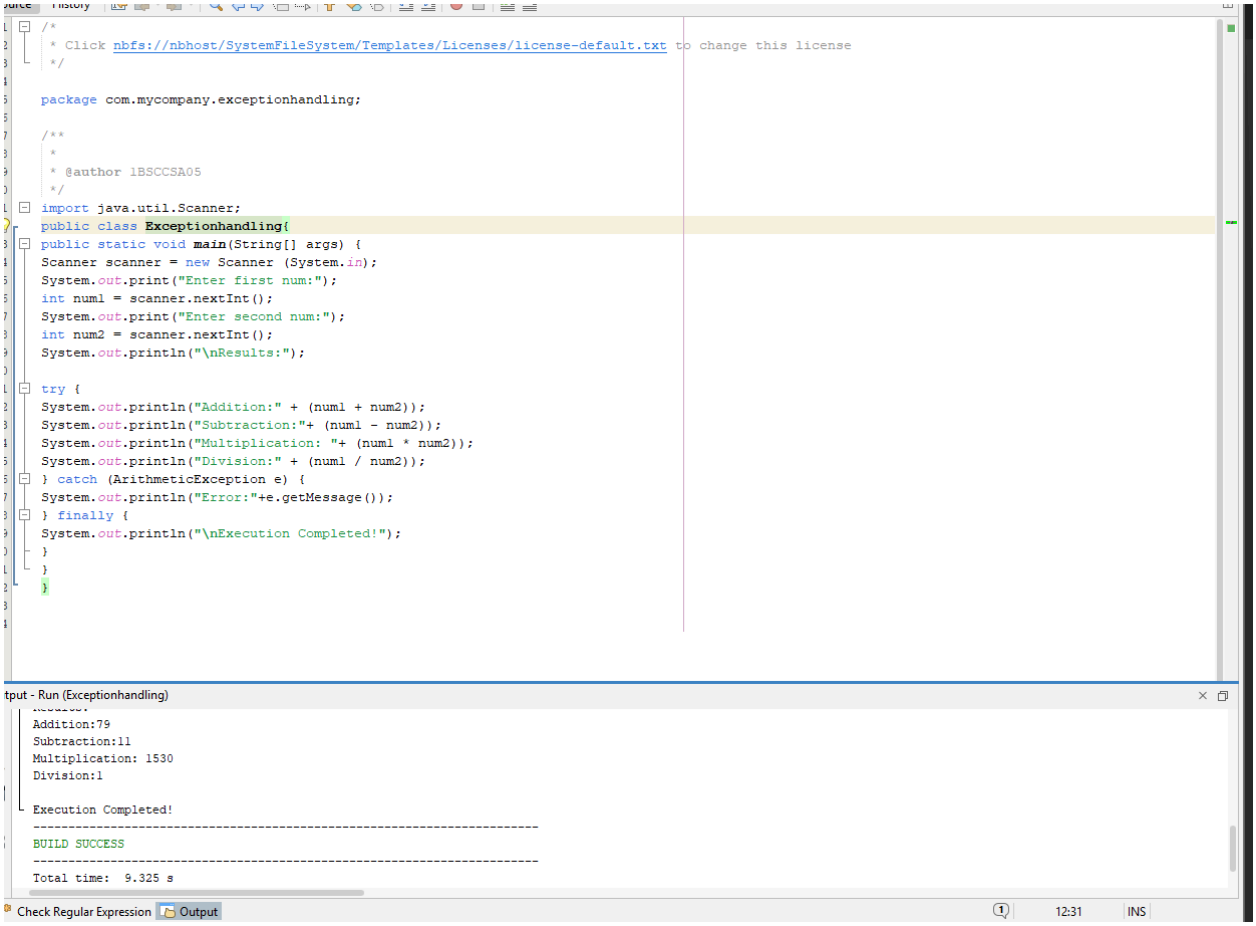
Program12



```
Source  History
1
2   package math_operations;
3   // Calculator class in the
4   public class Object{
5   public int add(int a, int b) {
6   return a + b;
7   }
8   public int subtract(int a, int b) {
9   return a - b;
10  }
11  public int multiply(int a, int b) {
12  return a * b;
13  }
14  public double divide(int a, int b) {
15  if (b != 0) {
16  return a / b;
17  } else {
18  System.out.println("Cannot divide by zero");
19  return Double.NaN;
20  }
21  }
22  }
23  // MathUtils class in the math_operations package
24  package math_operations;
25  public class Object{
26  public double calculateSquareRoot(double num) {
27  if (num >= 0) {
28  return Math.sqrt(num);
29  } else {
30  System.out.println("Cannot calculate square root of a negative number");
31  return Double.NaN;
32  }
33  }
34  }
35  // Main class for testing the math operations package
36  public class Object{
37  public static void main(String[] args) {
```

```
utput - Run (Inheritance)
COMPILATION ERROR :
----------
com/mycompany/inheritance/object.java:[24,1] class, interface, enum, or record expected
1 error
----------
------------------------------------------------------------------------
BUILD FAILURE
------------------------------------------------------------------------
Total time:  1.475 s
Finished at: 2025-12-29T13:14:04+05:30
```

Program13



```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 */

package com.mycompany.exceptionhandling;

/**
 *
 * @author 1BSCCSA05
 */
import java.util.Scanner;
public class Exceptionhandling{
public static void main(String[] args) {
Scanner scanner = new Scanner (System.in);
System.out.print("Enter first num:");
int num1 = scanner.nextInt();
System.out.print("Enter second num:");
int num2 = scanner.nextInt();
System.out.println("\nResults:");

try {
System.out.println("Addition:" + (num1 + num2));
System.out.println("Subtraction:"+ (num1 - num2));
System.out.println("Multiplication: "+ (num1 * num2));
System.out.println("Division:" + (num1 / num2));
} catch (ArithmeticException e) {
System.out.println("Error:"+e.getMessage());
} finally {
System.out.println("\nExecution Completed!");
}
}
}
```

```
tput - Run (Exceptionhandling)
Addition:79
Subtraction:11
Multiplication: 1530
Division:1

Execution Completed!
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  9.325 s
Check Regular Expression  Output  12:31  INS
```

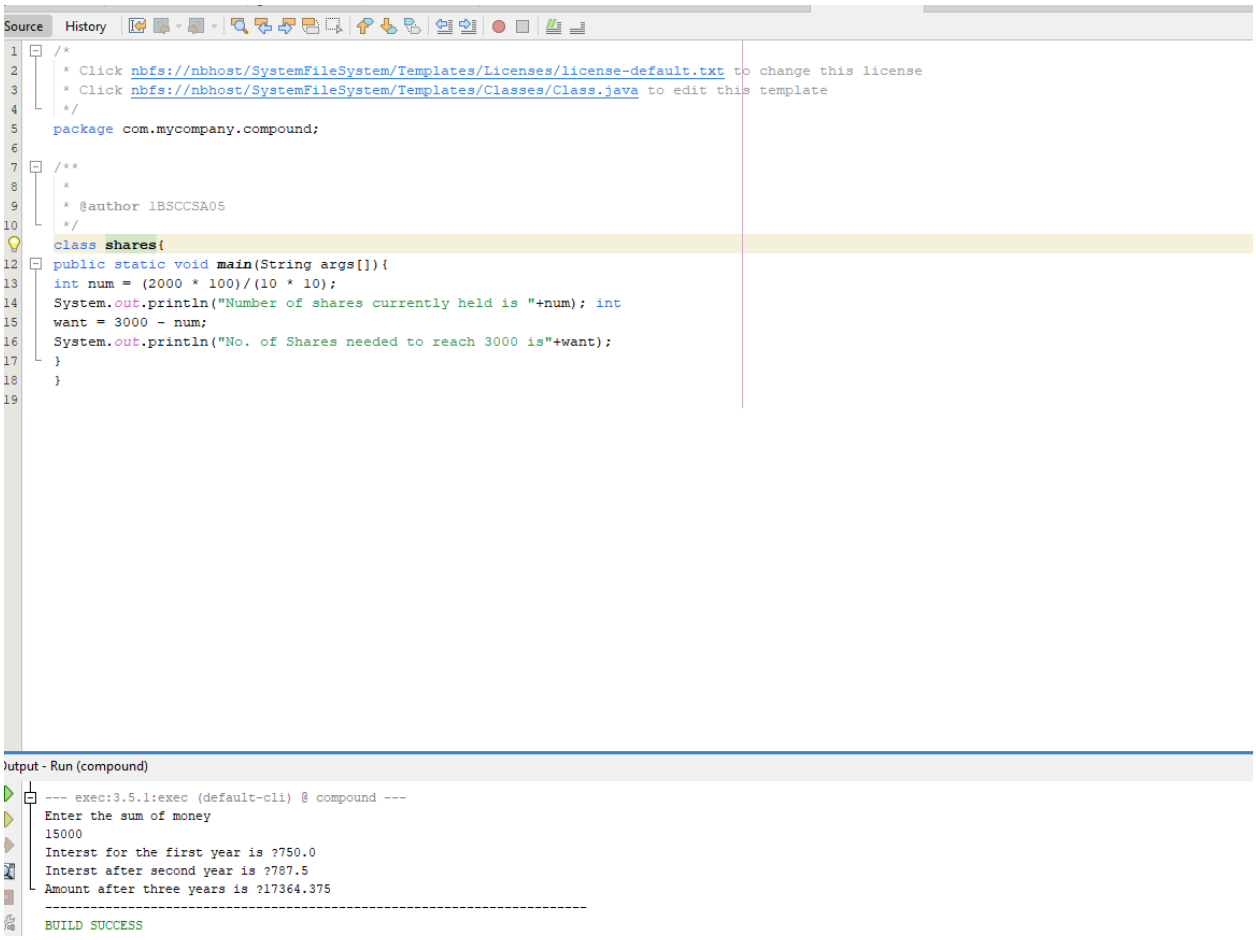
Program14

```java
package com.mycompany.compound;

/**
 *
 * @author 1BSCCSA05
 */
import java.util.*;
class Compound{
public static void main(String args[]){
Scanner sc = new Scanner(System.in);
System.out.println("Enter the sum of money");
double sum = sc.nextInt();
double in1 = sum * 5* 1/100.0;
System.out.println("Interst for the first year is \u20B9"+in1); sum
+= in1;
double in2 = sum * 5 * 1 / 100.0;
System.out.println("Interst after second year is \u20B9"+in2); sum
+= in2;
double in3 = sum * 5 * 1 /100.0;
sum += in3;
System.out.println("Amount after three years is \u20B9"+sum);
}
}
```

put - Run (compound)

```
--- exec:3.5.1:exec (default-cli) @ compound ---
Enter the sum of money
20000
Interst for the first year is ?1000.0
Interst after second year is ?1050.0
Amount after three years is ?23152.5
------------------------------------------------------------------------
BUILD SUCCESS
```

Program15



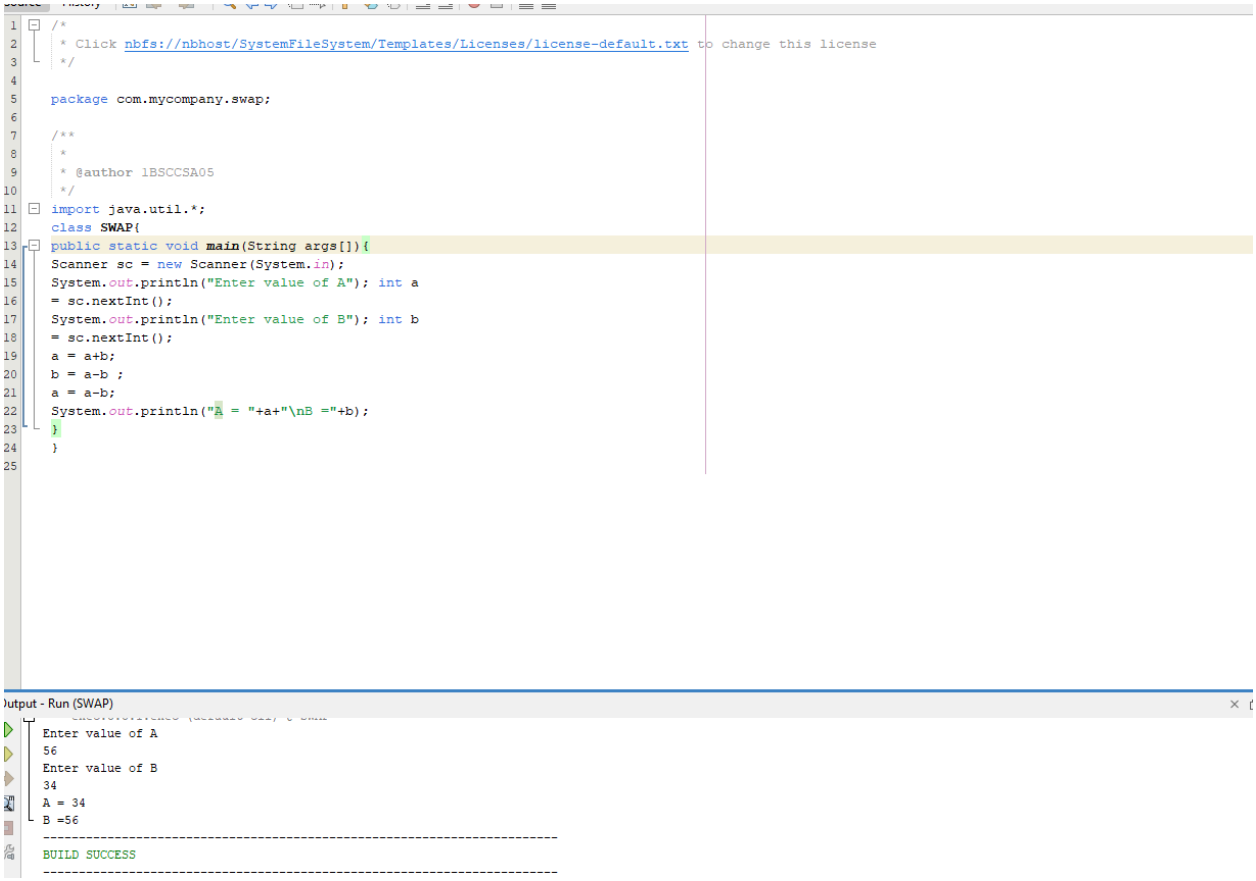
```
Source  History
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
 */
package com.mycompany.compound;

/**
 *
 * @author 1BSCCSA05
 */
class shares{
public static void main(String args[]){
int num = (2000 * 100)/(10 * 10);
System.out.println("Number of shares currently held is "+num); int
want = 3000 - num;
System.out.println("No. of Shares needed to reach 3000 is"+want);
}
}

Output - Run (compound)
--- exec:3.5.1:exec (default-cli) @ compound ---
Enter the sum of money
15000
Interst for the first year is ?750.0
Interst after second year is ?787.5
Amount after three years is ?17364.375
------------------------------------------------------------------------
BUILD SUCCESS
```

Program16

```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 */

package com.mycompany.time;

/**
 *
 * @author 1BSCCSA05
 */
import java.util.*;
class Time{
public static void main(String args[]){
Scanner sc = new Scanner(System.in);
System.out.println("Enter time in seconds"); int
sec = sc.nextInt();
int hour = sec/3600;
sec = sec % 3600;
int min = sec / 60;
sec = sec % 60;
System.out.println(hour+" Hours "+min+"Minutes "+sec+" Seconds" );
}
}
```

```
t - Run (time)
· Compiling 1 source file with javac [debug release 25] to target\classes

] --- exec:3.5.1:exec (default-cli) @ time ---
  Enter time in seconds
  2456
· 0 Hours 40Minutes 56 Seconds
  ------------------------------------------------------------------------
  BUILD SUCCESS
```

Program17



```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 */

package com.mycompany.swap;

/**
 *
 * @author 1BSCCSA05
 */
import java.util.*;
class SWAP{
public static void main(String args[]){
Scanner sc = new Scanner(System.in);
System.out.println("Enter value of A"); int a
= sc.nextInt();
System.out.println("Enter value of B"); int b
= sc.nextInt();
a = a+b;
b = a-b ;
a = a-b;
System.out.println("A = "+a+"\nB ="+b);
}
}
```

```
Output - Run (SWAP)
Enter value of A
56
Enter value of B
34
A = 34
B =56
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
```

Program18

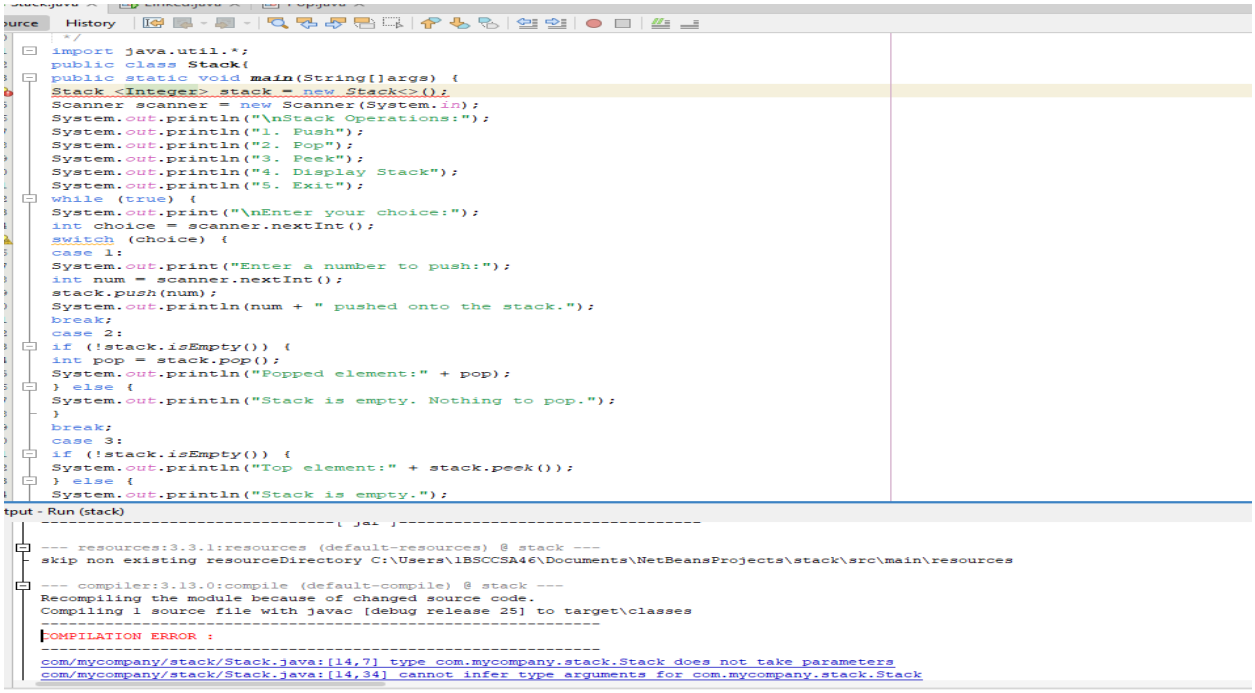
```java

/**
 *
 * @author 1BSCCSA46
 */
import java.io.*;
public class Linked{
public static void main(String[] args) {
try (FileOutputStream fos = new FileOutputStream("file.txt")) {
fos.write("Hello, World!".getBytes());
} catch (IOException e) {
System.out.println("Error:" + e.getMessage());
}
}

}

```

com.mycompany.linked.Linked

utput - Run (linked)

```
skip non existing resourceDirectory C:\Users\1BSCCSA46\Documents\NetBeansProjects\linked\src\main\resources

--- compiler:3.13.0:compile (default-compile) @ linked ---
Recompiling the module because of changed source code.
Compiling 1 source file with javac [debug release 25] to target\classes

--- exec:3.5.1:exec (default-cli) @ linked ---
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  3.556 s
Finished at: 2026-01-03T16:11:35+05:30
------------------------------------------------------------------------
```

Program19



```
 */
import java.util.*;
public class Stack{
public static void main(String[]args) {
Stack <Integer> stack = new Stack<>();
Scanner scanner = new Scanner(System.in);
System.out.println("\nStack Operations:");
System.out.println("1. Push");
System.out.println("2. Pop");
System.out.println("3. Peek");
System.out.println("4. Display Stack");
System.out.println("5. Exit");
while (true) {
System.out.print("\nEnter your choice:");
int choice = scanner.nextInt();
switch (choice) {
case 1:
System.out.print("Enter a number to push:");
int num = scanner.nextInt();
stack.push(num);
System.out.println(num + " pushed onto the stack.");
break;
case 2:
if (!stack.isEmpty()) {
int pop = stack.pop();
System.out.println("Popped element:" + pop);
} else {
System.out.println("Stack is empty. Nothing to pop.");
}
break;
case 3:
if (!stack.isEmpty()) {
System.out.println("Top element:" + stack.peek());
} else {
System.out.println("Stack is empty.");
```

```
tput - Run (stack)
------------------------------------[ jar ]-----------------------------------

--- resources:3.3.1:resources (default-resources) @ stack ---
skip non existing resourceDirectory C:\Users\1BSCCSA46\Documents\NetBeansProjects\stack\src\main\resources

--- compiler:3.13.0:compile (default-compile) @ stack ---
Recompiling the module because of changed source code.
Compiling 1 source file with javac [debug release 25] to target\classes
-------------------------------------------------------------
COMPILATION ERROR :
-------------------------------------------------------------
com/mycompany/stack/Stack.java:[14,7] type com.mycompany.stack.Stack does not take parameters
com/mycompany/stack/Stack.java:[14,34] cannot infer type arguments for com.mycompany.stack.Stack
```