

Basic Praticce of Programming Experiment JobSheet 3



From:

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Class:

1 I

Absence:

01

Major:

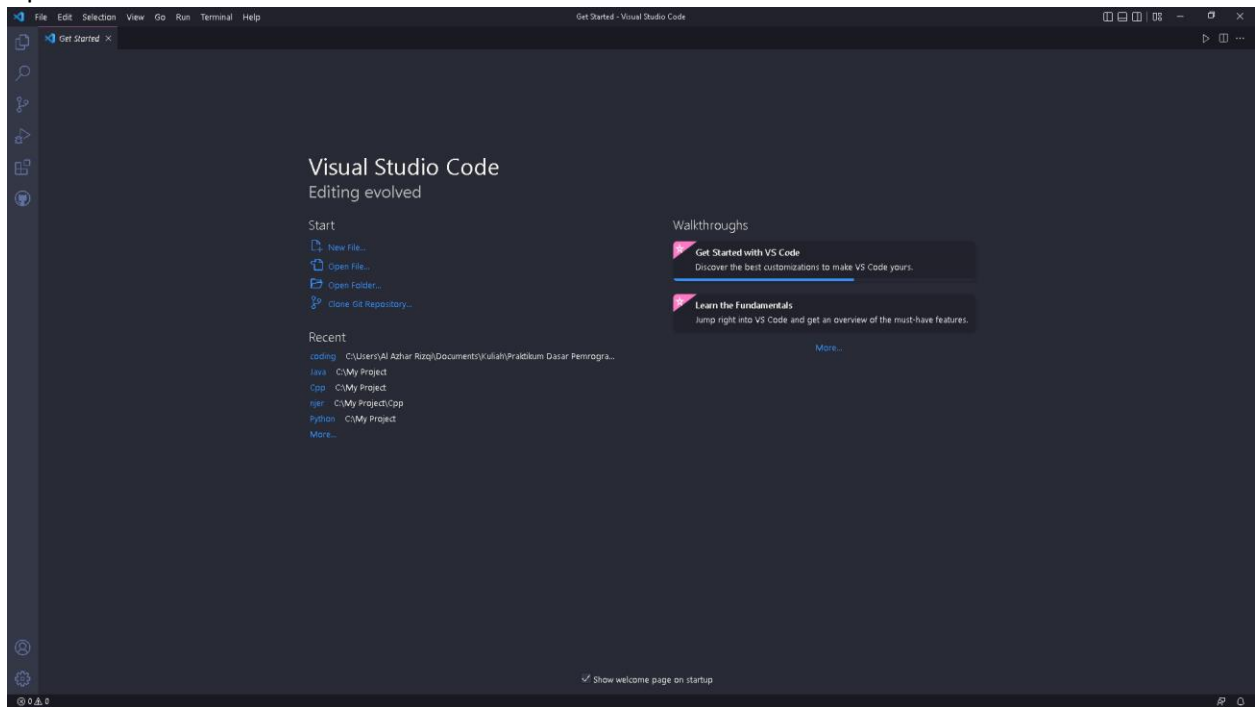
Information Technology

Study Program:

Informatic Engineering

Experiment 1

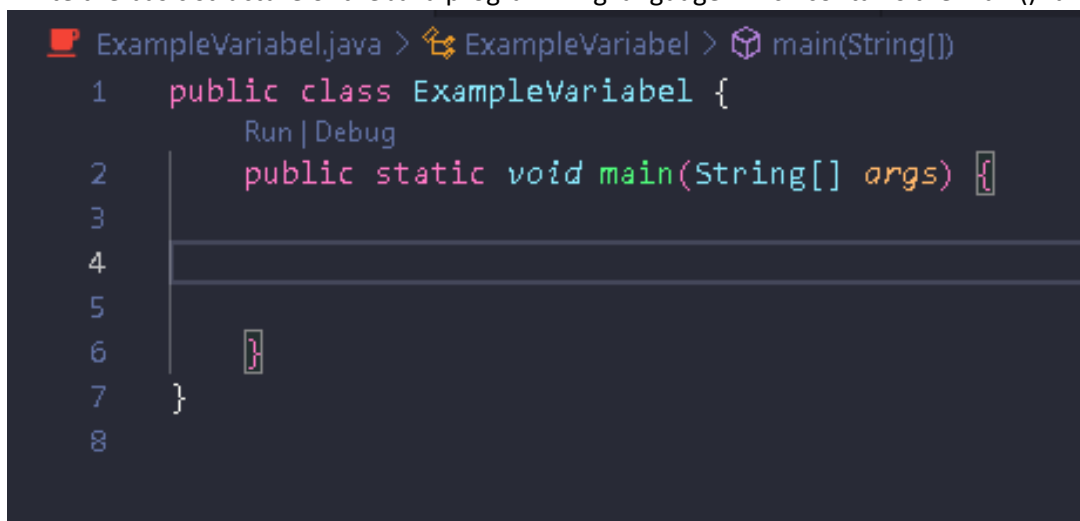
1. Open a text editor



2. Create a new file, name it ExampleVariabel.java



3. Write the basic structure of the Java programming language which contains the main() function



4. Write the code below in public static void main (String args [])

```
ExampleVariabel.java > ...
1  public class ExampleVariabel {
    Run | Debug
2      public static void main(String[] args) {
3
4          String oneOfMyHobbies = "Playing futsal";
5
6          boolean isSmart = true;
7
8          char gender = 'M';
9
10         byte _age = 20;
11
12         double $gpa = 3.38, height = 1.68;
13
14         System.out.println(oneOfMyHobbies);
15         System.out.println("Are you smart ? " + isSmart);
16         System.out.println("Gender : " + gender);
17         System.out.println("My current age is " + _age);
18         System.out.println(String.format(format: "My GPA is %s and my height is %s meters", $gpa, height));
19     }
20 }
21
22
```

5. Run the program code that you have written, then observe the results

```
Command Prompt
C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>java ExampleVariabel.java
Playing futsal
Are you smart ? true
Gender : M
My current age is 20
My GPA is 3.38 and my height is 1.68 meters
```

Questions !

1. Change the variable name so that the variable naming model is good and correct!
2. Run the code again and then observe the results!

Answer

- 1.

```
ExampleVariabel.java > ExampleVariabel > main(String[])
1  public class ExampleVariabel {
    Run | Debug
2      public static void main(String[] args) {
3
4          String hobbies = "Playing futsal";
5          boolean smart = true;
6          char gender = 'M';
7          byte age = 20;
8          double gpa = 3.38, height = 1.68;
9
10         System.out.println(hobbies);
11         System.out.println("Are you smart ? " + smart);
12         System.out.println("Gender : " + gender);
13         System.out.println("My current age is " + age);
14         System.out.println(String.format(format: "My GPA is %s and my height is %s meters", gpa, height));
15     }
16 }
17
18
```

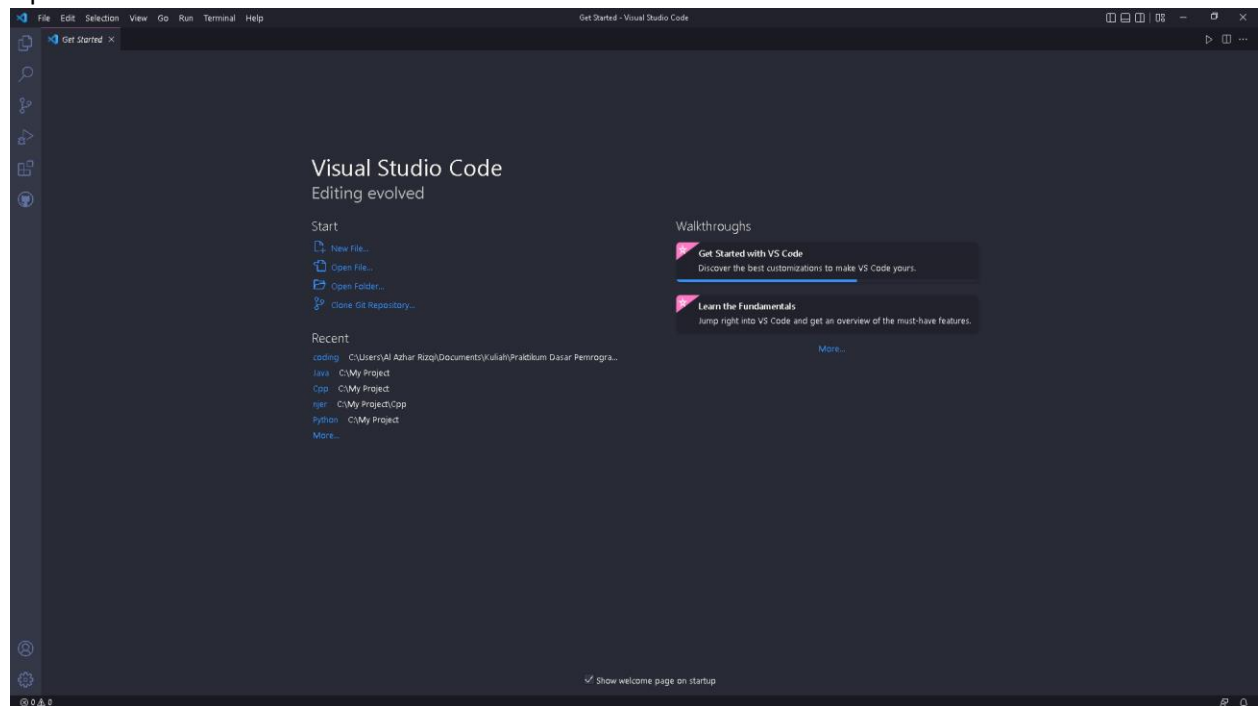
- 2.

```
C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>java ExampleVariabel.java
Playing futsal
Are you smart ? true
Gender : M
My current age is 20
My GPA is 3.38 and my height is 1.68 meters

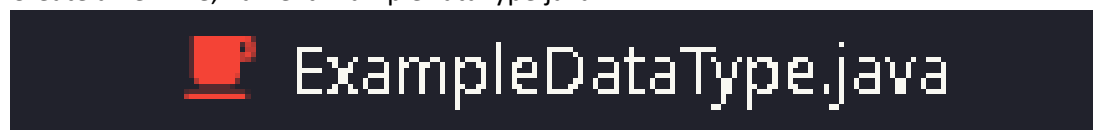
C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>
```

Experiment 2

1. Open a text editor



2. Create a new file, name it ExampleDataType.java



3. Write the basic structure of the Java programming language which contains the main() function

```
ExampleDataType.java > ExampleDataType > main(String[])
1 public class ExampleDataType {
    Run | Debug
2     public static void main(String[] args) {}
3
4
5
6 }
7
8
```

4. Write the code below in public static void main (String args [])

```
ExampleDataType.java > ExampleDataType > main(String[])
1 public class ExampleDataType {
    Run | Debug
2     public static void main(String[] args) {}
3
4     char bloodGroup = 'A';
5     byte distance = (byte) 130;
6     short theNumberOfResidents = 1025;
7     float temperature = 60.50f;
8     double weight = 0.5467812345;
9     long balance = 150000000;
10    int number = 0x10;
11
12    System.out.println("Blood Group\t\t: " + (byte) bloodGroup);
13    System.out.println("Distance\t\t: " + distance );
14    System.out.println("The number of residents\t: " + theNumberOfResidents);
15    System.out.println("Temperature\t\t: " + temperature);
16    System.out.println("Weight\t\t\t: " + (float) weight);
17    System.out.println("Balance\t\t\t: " + balance);
18    System.out.println("Number\t\t\t: " +number);
19
20 }
21
22
```

5. Run the program code that you have written, then observe the results

```
C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>java ExampleDataType.java
Blood Group      : 65
Distance         : -126
The number of residents : 1025
Temperature      : 60.5
Weight           : 0.5467812345
Balance          : 150000000
Number           : 16

C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>
```

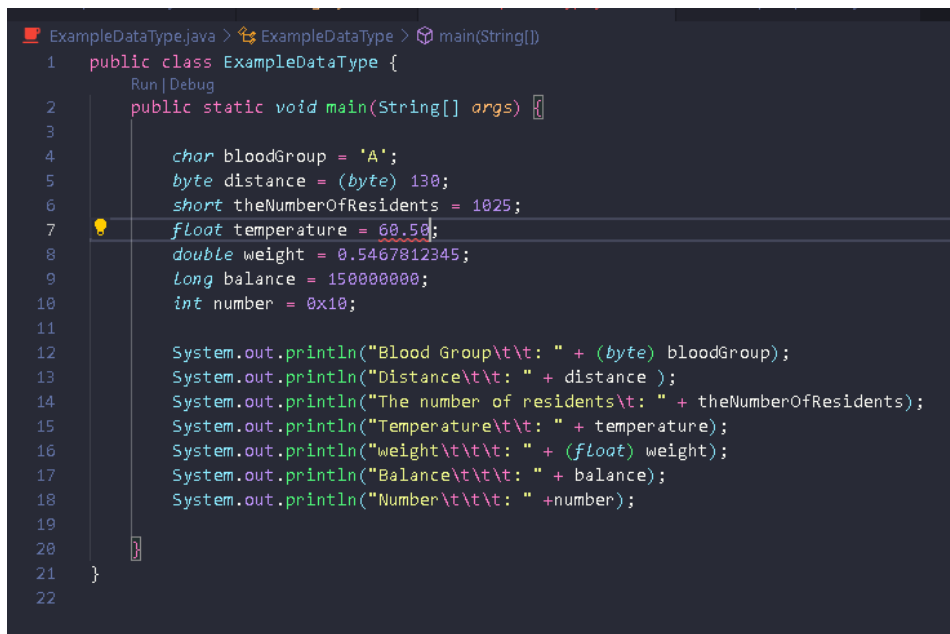
Questions!

1. Explain why the blood group does not display an "A"!

2. Explain the syntax of distance = (byte) 130 bytes! Then, explain why the results change when displayed!
3. In the syntax float temperature = 60.50F; remove the letter F, then run again. What happened?
4. Why does the result change when displaying weight values?
5. Explain the meaning of initializing 0x10 on number variables! What does it do?

Answer

1. Because in sout there is syntax (byte). If syntax (byte) removed, the "A" will display.
2. Syntax of distance = (byte) 130 bytes, are bytes of the data values. Not the value of variable. Because declared are bytes of number 130. If we want to display the number of 130, changed to byte distance = 130; and then System.out.println("Distance : " + distance);
3. Code after remove :

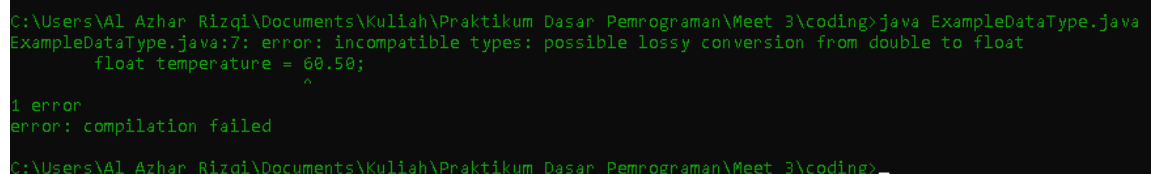


```

ExampleDataType.java > ExampleDataType > main(String[])
1  public class ExampleDataType {
2      public static void main(String[] args) {
3
4          char bloodGroup = 'A';
5          byte distance = (byte) 130;
6          short theNumberOfResidents = 1025;
7          float temperature = 60.50;
8          double weight = 0.5467812345;
9          long balance = 150000000;
10         int number = 0x10;
11
12         System.out.println("Blood Group\t\t: " + (byte) bloodGroup);
13         System.out.println("Distance\t\t: " + distance );
14         System.out.println("The number of residents\t: " + theNumberOfResidents);
15         System.out.println("Temperature\t\t: " + temperature);
16         System.out.println("Weight\t\t\t: " + (float) weight);
17         System.out.println("Balance\t\t\t: " + balance);
18         System.out.println("Number\t\t\t: " + number);
19
20     }
21 }
22

```

Result :



```

C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>java ExampleDataType.java
ExampleDataType.java:7: error: incompatible types: possible lossy conversion from double to float
    float temperature = 60.50;
                        ^
1 error
error: compilation failed

C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>

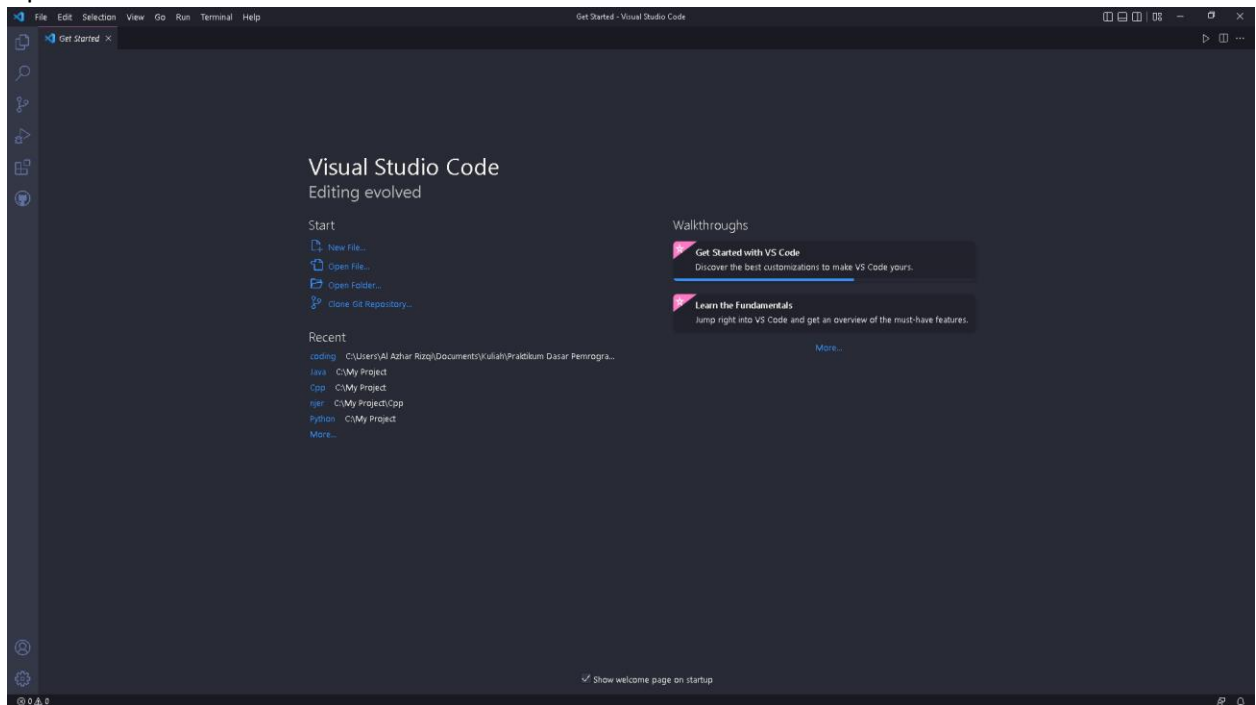
```

The program can't running because cannot convert from double to float.

4. Because in sout of weight has been casting be float.
5. 0x10 is hexadecimal number. The function to display hex number in decimal which is 16.

Experiment 3

1. Open a text editor



2. Create a new file, name it ExampleOperator.java
3. Write the basic structure of the Java programming language which contains the main() function
4. Write the code below in public static void main (String args [])

```
ExampleOperator.java > ExampleOperator > main(String[])
1  public class ExampleOperator {
    Run | Debug
2      public static void main(String[] args) {
3
4          int x = 10;
5          System.out.println("Initial value of x = " + x);
6          System.out.println("x++ = " + x++);
7          System.out.println("After evaluation, x = " + x);
8
9          x = 10;
10         System.out.println("Initial value of x = " + x);
11         System.out.println("++x = " + ++x);
12         System.out.println("After evaluation, x = " + x);
13
14         int y = 12;
15         System.out.println(x > y || y == x && y <= x);
16         int z = x ^ y;
17         System.out.println("The result of x ^ y is " + z);
18         z %= 2;
19         System.out.println("The final result is " + z);
20
21     }
22 }
23
```

- Run the program code that you have written, then observe the results

```
C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>java ExampleOperator.java
Initial value of x = 10
x++ = 10
After evaluation, x = 11
Initial value of x = 10
++x = 11
After evaluation, x = 11
false
The result of x ^ y is 7
The final result is 1

C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>_
```

Questions!

- Explain in your opinion what is the difference between `x++` and `++x`!
- What is the result of `int z = x ^ y`; do the calculations manually (you can use a calculator)!

Answer

- `x++` are use the variable of `x` first, then add 1 to variable `x`.
`++x` are add 1 to variable `x` first, then use the variable of `x`. reversal off `x++`.
- The result is 7. The calculator :

The screenshot shows a web-based calculator interface for bitwise operations. It includes input fields for 'Data type' (set to 'Decimal'), 'Number1' (11), and 'Number2' (12). Below these are three green buttons for 'AND', 'OR', and 'XOR'. The 'XOR' button is selected. A banner for 'Find It on Marketplace' is visible. Below the banner, the 'XOR Result' is displayed in a table.

XOR Result	
Result in binary	111
Result in decimal	7
Result in hexadecimal	7

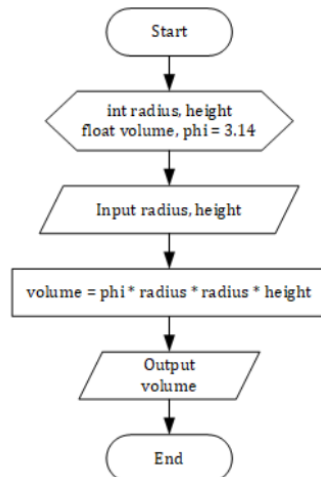
Experiment 4

- Create a new file named `triangle.java`



triangle.java

2. Observe the flowchart to calculate the area of the following triangle



3. Create a basic Java program structure that consists of the main() function.

```
triangle.java > triangle > main(String[])
1  public class triangle {
    Run | Debug
2      public static void main(String[] args) {
3
4      }
5  }
6
```

4. Add the Scanner library. Write the following code at the top outside the class

```
triangle.java > ...
1  import java.util.Scanner;
2
```

5. Make a Scanner declaration. Write the following code in the main() function

```
5
6  Scanner scanner = new Scanner(System.in);
7
```

6. Create an int variable for base and height, then a float variable for area.

```
7
8  int base, height;
9  float area;
10
```

7. Write down the syntax for inputting the base and height values

```

10
11     System.out.print(s: "Insert base : ");
12     base = scanner.nextInt();
13
14     System.out.print(s: "Insert height : ");
15     height = scanner.nextInt();
16

```

8. Write down the syntax for calculating the area of a triangle

```

16
17     area = base * height / 2;
18

```

9. Print the calculation of the area of the triangle

```

18
19     System.out.println("Area of triangle is "+ area);
20

```

10. Compile and run the program. Observe the results!

- Code :

```

triangle.java > triangle > main(String[])
1  import java.util.Scanner;
2
3  public class triangle {
4      public static void main(String[] args) {
5
6          Scanner scanner = new Scanner(System.in);
7
8          int base, height;
9          float area;
10
11          System.out.print(s: "Insert base : ");
12          base = scanner.nextInt();
13
14          System.out.print(s: "Insert height : ");
15          height = scanner.nextInt();
16
17          area = base * height / 2;
18
19          System.out.println("Area of triangle is "+ area);
20
21      }
22
23

```

- Result :

```

C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>javac triangle.java
C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>java triangle.java
Insert base : 50
Insert height : 55
Area of triangle is 1375.0
C:\Users\Al Azhar Rizqi\Documents\Kuliah\Praktikum Dasar Pemrograman\Meet 3\coding>

```

Questions!

1. Explain why the float data type is used for the variable area!

Answer

1. Because the result of area can be decimal, so that we used float or double, not integer.