

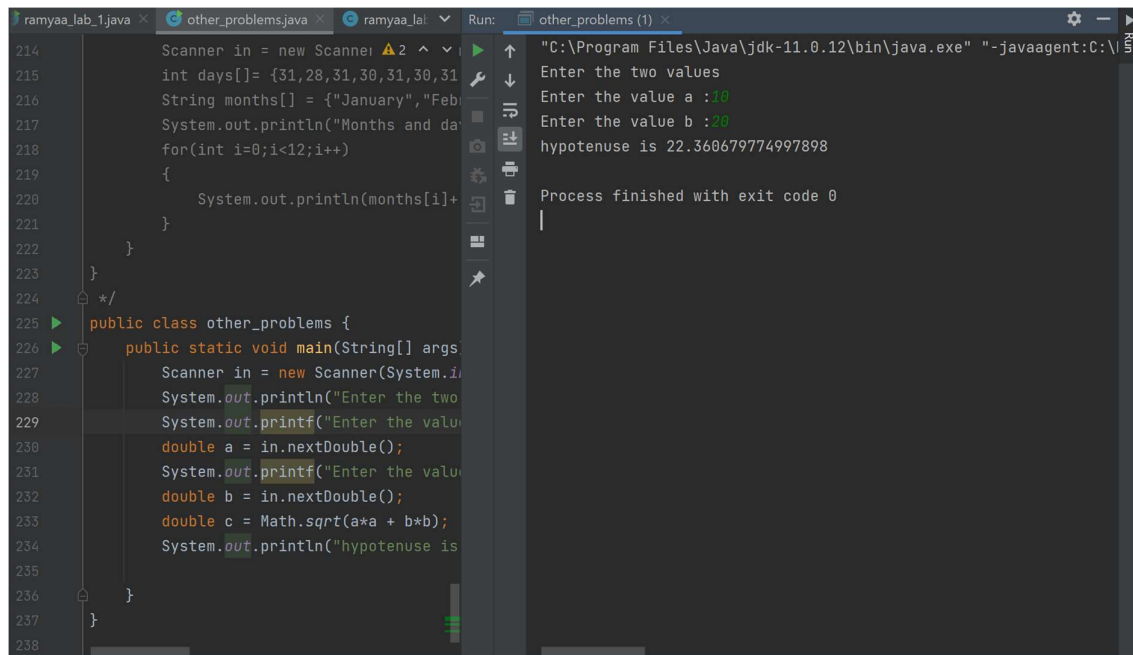
# PRACTICE PROBLEMS JAVA MODULE 1

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## 1. Hypotenuse of a right angle triangle

Solution:

```
public class other_problems {  
  
    public static void main(String[] args) {  
  
        Scanner in = new Scanner(System.in);  
  
        System.out.println("Enter the two values");  
  
        System.out.printf("Enter the value a :");  
  
        double a = in.nextDouble();  
  
        System.out.printf("Enter the value b :");  
  
        double b = in.nextDouble();  
  
        double c = Math.sqrt(a*a + b*b);  
  
        System.out.println("hypotenuse is "+c);  
  
    }  
}
```



The screenshot shows an IDE with two windows. The left window, titled 'other\_problems.java', displays the Java code for calculating the hypotenuse. The code is as follows:

```
214 Scanner in = new Scanner(System.in);  
215 int days[] = {31, 28, 31, 30, 31, 30, 31};  
216 String months[] = {"January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"};  
217 System.out.println("Months and days of the year");  
218 for(int i=0; i<12; i++)  
219 {  
220     System.out.println(months[i] + " has " + days[i] + " days");  
221 }  
222 }  
223 }  
224 */  
225 public class other_problems {  
226     public static void main(String[] args)  
227     {  
228         Scanner in = new Scanner(System.in);  
229         System.out.println("Enter the two values");  
230         System.out.printf("Enter the value a :");  
231         double a = in.nextDouble();  
232         System.out.printf("Enter the value b :");  
233         double b = in.nextDouble();  
234         double c = Math.sqrt(a*a + b*b);  
235         System.out.println("hypotenuse is "+c);  
236     }  
237 }  
238 }
```

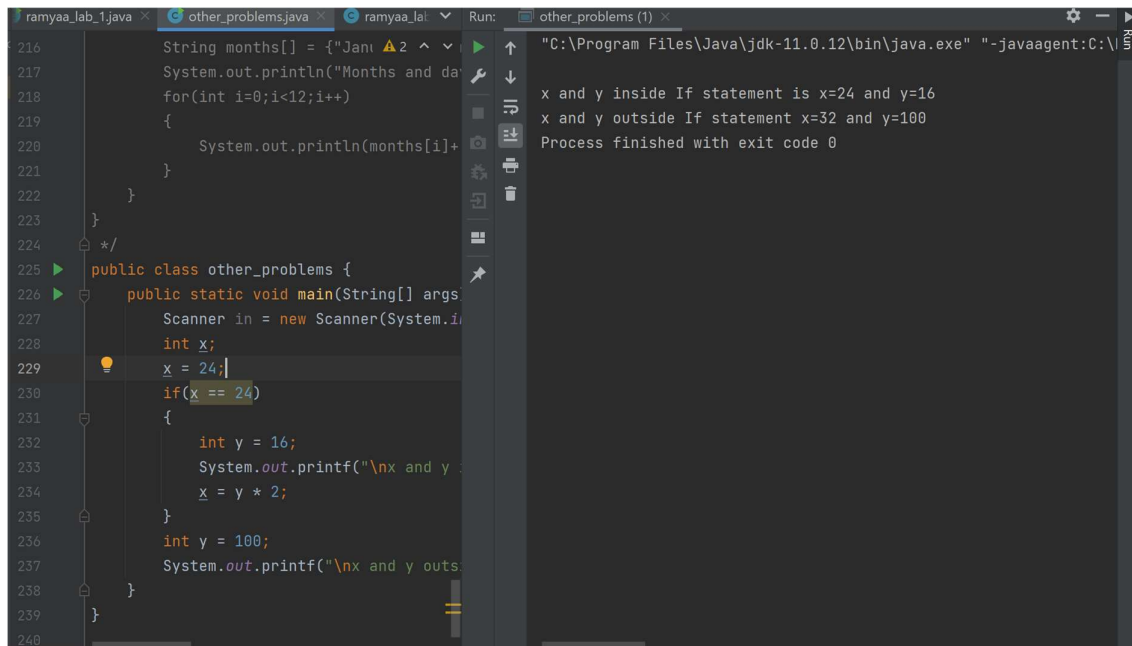
The right window, titled 'other\_problems (1)', shows the execution output:

```
"C:\Program Files\Java\jdk-11.0.12\bin\java.exe" "-javaagent:C:\Program Files\Java\jdk-11.0.12\bin\javaagent.jar" -classpath .;C:\Program Files\Java\jdk-11.0.12\bin\java.exe other_problems  
Enter the two values  
Enter the value a :10  
Enter the value b :20  
hypotenuse is 22.360679774997898  
Process finished with exit code 0
```

## 2. Displaying Block scope

Solution:

```
public class other_problems {  
    public static void main(String[] args) {  
        Scanner in = new Scanner(System.in);  
  
        int x;  
        x = 24;  
        if(x == 24)  
        {  
            int y = 16;  
            System.out.printf("\nx and y inside If statement is x=%d and y=%d",x,y);  
            x = y * 2;  
        }  
        int y = 100;  
        System.out.printf("\nx and y outside If statement x=%d and y=%d",x,y);  
    }  
}
```



```
String months[] = {"Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"};  
System.out.println("Months and days");  
for(int i=0; i<12; i++)  
{  
    System.out.println(months[i] + " " + (i+1));  
}  
*/  
public class other_problems {  
    public static void main(String[] args) {  
        Scanner in = new Scanner(System.in);  
        int x;  
        x = 24;  
        if(x == 24)  
        {  
            int y = 16;  
            System.out.printf("\nx and y inside If statement is x=%d and y=%d",x,y);  
            x = y * 2;  
        }  
        int y = 100;  
        System.out.printf("\nx and y outside If statement x=%d and y=%d",x,y);  
    }  
}
```

Output:

```
x and y inside If statement is x=24 and y=16  
x and y outside If statement x=32 and y=100  
Process finished with exit code 0
```

## 3. Casting Type

Solution:

```

public class other_problems {

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        byte b;

        int i = 2416;

        double d = 123.456;

        System.out.println("Conversion from int to byte:");

        b = (byte)i;

        System.out.println("Value of i and b are :"+i+" "+b);

        System.out.println("Conversion from double to int:");

        i = (int) d;

        System.out.println("Value of d and i :"+d+" "+i);

        System.out.println("Conversion of double to byte");

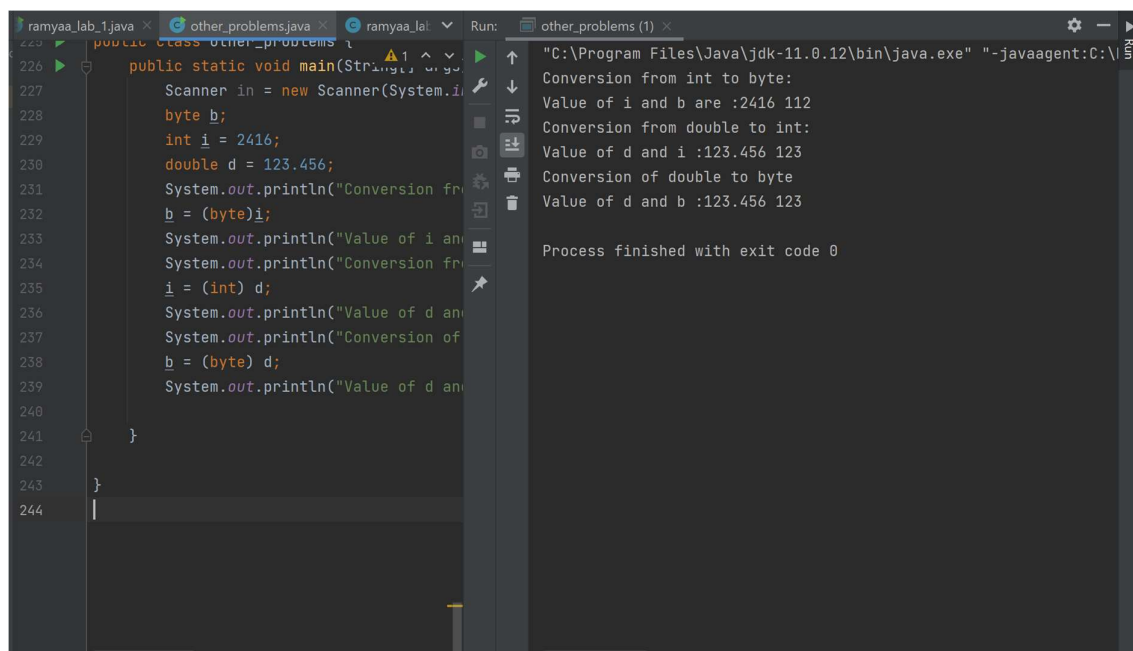
        b = (byte) d;

        System.out.println("Value of d and b :"+d+" "+b);

    }

}

```



```

ramyaa_lab_1.java x other_problems.java x ramyaa_lab_1 x Run: other_problems (1) x
226 public class other_problems {
227     public static void main(String[] args) {
228         Scanner in = new Scanner(System.in);
229         byte b;
230         int i = 2416;
231         double d = 123.456;
232         System.out.println("Conversion from int to byte:");
233         b = (byte)i;
234         System.out.println("Value of i and b are :"+i+" "+b);
235         System.out.println("Conversion from double to int:");
236         i = (int) d;
237         System.out.println("Value of d and i :"+d+" "+i);
238         System.out.println("Conversion of double to byte");
239         b = (byte) d;
240         System.out.println("Value of d and b :"+d+" "+b);
241     }
242 }
243 }
244

```

Run: "C:\Program Files\Java\jdk-11.0.12\bin\java.exe" "-javaagent:C:\Program Files\Java\jdk-11.0.12\bin\javaagent.jar" -classpath .;C:\Program Files\Java\jdk-11.0.12\bin\javaagent.jar other\_problems

```

Conversion from int to byte:
Value of i and b are :2416 112
Conversion from double to int:
Value of d and i :123.456 123
Conversion of double to byte
Value of d and b :123.456 123
Process finished with exit code 0

```

#### 4. Printing pattern using 2-D Array

Solution:

```
public class other_problems {  
    public static void main(String[] args) {  
        Scanner in = new Scanner(System.in);  
  
        int i,j,k=0;  
  
        int twoD[][] = new int[4][];  
        twoD[0] = new int[1];  
        twoD[1] = new int[2];  
        twoD[2] = new int[3];  
        twoD[3] = new int[4];  
  
        for(i=0;i<4;i++)  
        {  
            for(j=0;j<i+1;j++)  
            {  
                twoD[i][j] = k;  
                k++;  
            }  
        }  
        for (i=0;i<4;i++)  
        {  
            for(j=0;j<i+1;j++)  
            {  
                System.out.print(twoD[i][j]+" ");  
            }  
            System.out.println();  
        }  
    }  
}
```

The screenshot shows an IDE with a Java file named `other_problems.java`. The code defines a 2D array `twoD` and fills it with values from 0 to 9. It then prints the array row by row. The output window shows the following output:

```
0
1 2
3 4 5
6 7 8 9
Process finished with exit code 0
```

## 5. Printing Months and Days using 1-D array

Solution:

```
public class other_problems {

    public static void main(String[] args) {

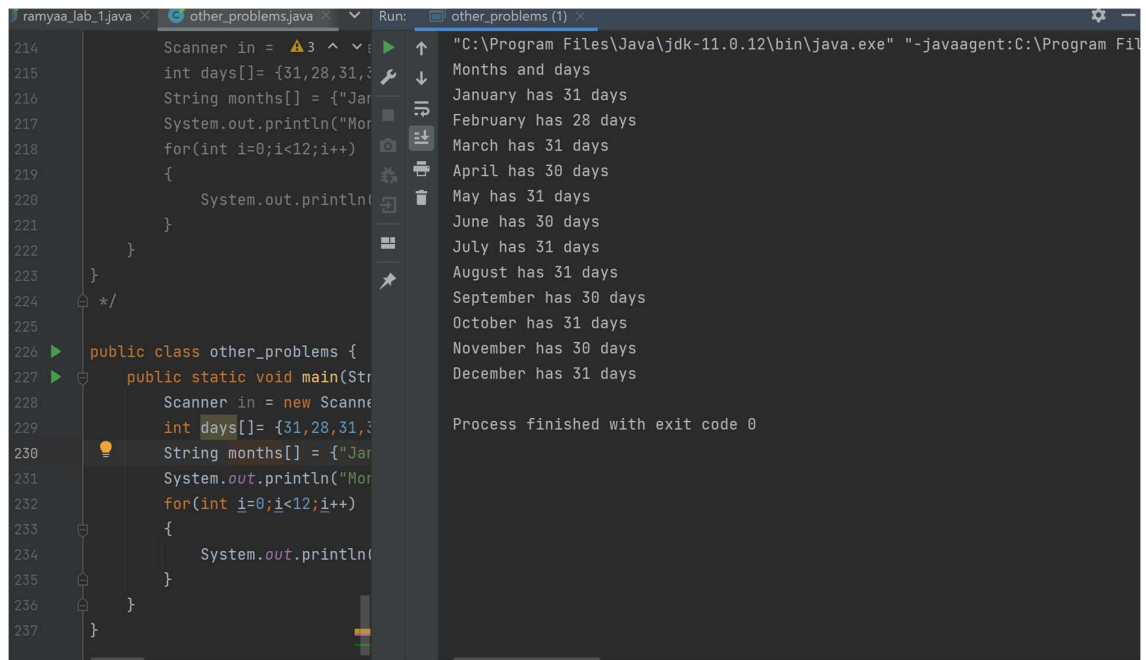
        Scanner in = new Scanner(System.in);

        int days[] = {31,28,31,30,31,30,31,31,30,31,30,31};

        String months[] =
{"January","February","March","April","May","June","July","August","September","October","November","December"};

        System.out.println("Months and days");

        for(int i=0;i<12;i++)
        {
            System.out.println(months[i]+" has "+days[i]+" days");
        }
    }
}
```



The image shows a screenshot of an IDE with two main panels. The left panel displays the source code of a Java program named `other_problems.java`. The code defines a `Scanner` object, an array of days for each month, and a loop that prints the number of days for each month. The right panel shows the output of the program, which lists the months and their corresponding days. The output is as follows:

```
Months and days
January has 31 days
February has 28 days
March has 31 days
April has 30 days
May has 31 days
June has 30 days
July has 31 days
August has 31 days
September has 30 days
October has 31 days
November has 30 days
December has 31 days

Process finished with exit code 0
```

```
214 Scanner in = new Scanner(System.in);
215 int days[] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};
216 String months[] = {"January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"};
217 System.out.println("Months and days");
218 for(int i=0; i<12; i++)
219 {
220     System.out.println(months[i] + " has " + days[i] + " days");
221 }
222 }
223 }
224 */
225
226 public class other_problems {
227     public static void main(String[] args) {
228         Scanner in = new Scanner(System.in);
229         int days[] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};
230         String months[] = {"January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"};
231         System.out.println("Months and days");
232         for(int i=0; i<12; i++)
233         {
234             System.out.println(months[i] + " has " + days[i] + " days");
235         }
236     }
237 }
```