Lecture 8 : Functions & Scope

Predict the output

Send Feedback

Predict the output of the following code:

```
public static void main (String[] args) {
   int n=10,r=6;
   int factn=1,factr=1,factnr=1;
   for(int i=2;i<=n;i++)
   {
      factn*=i;
      if(i<=r)
         factr*=i;
      if(i<=n-r)
         factnr*=i;
   }
   int ncr=factn/(factr*factnr);
   System.out.print(ncr);
}
```

Options

This problem has only one correct answer

- 252
- 200
- 210
- 762

Hurray! Correct Answer

Solution Description

factn=3628800.
factr=720
factnr=24
ncr=3628800/(720 * 24)
=210

Return type

Send Feedback

What is the return type of a method that does not returns any value ?

Options

This problem has only one correct answer

- int
- double
- char
- void

Hurray! Correct Answer

Solution Description

####The functions which doesn't return any value, their return type is "void".

Return type

Send Feedback

Let's say the problem is - You will be given two numbers(both integers) and you need to return their sum.

For this problem, what should be the return type of function -

Options

Attempts left: 1/2

This problem has only one correct answer

- (•) int
- ( ) boolean
- ( ) char
- ( ) void

Hurray! Correct Answer

Solution Description

####We need to return the sum of two integers, which is again an integer. So the sum that we want to return is of type "int". Hence return type should be "int" for this function.

What will be the output of the following code ?

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

public static void main(String[] args) {
int a = 7;
func(a, 12);
}
```

19 ✓

Correct Answer

Find the output

Send Feedback

What will be the output of the following code ?

```
public static void demo(int a, int b){
   System.out.println(a + " " + b);
}

public static void main(String[] args) {
   int a = 5;
   int b = 15;
   demo(a);
}
```

Options

This problem has only one correct answer

- ( ) 5 15
- (•) Compilation Error
- ( ) 5 0
- ( ) None of these

Hurray! Correct Answer

Return type

Send Feedback

What should be return type of the following function:

```
public static ____ division(int a,int b)
{
   float c=a/b;
   return c;
}
```

Options

This problem has only one correct answer

- int
- float
- long

Hurray! Correct Answer

Solution Description

As we need to return a decimal value we can use float or double.

Check the error

Send Feedback

Would the following code generate an error:

```
public static double add(int a,int b)
{
   float c=a+b;
   return c;
}
public static void main (String[] args) {
   System.out.print(add(10,3));
}
```

Options

This problem has only one correct answer

- Yes
- No

Hurray! Correct Answer

Solution Description

There is no problem in converting float to double.

Fahrenheit to *Celsius Table*

Send Feedback

Given three values - *Start Fahrenheit* Value (S), *End Fahrenheit* value (E) and *Step* Size (W), you need to convert all *Fahrenheit* values from *Start* to *End* at the gap of W, into their corresponding *Celsius* values and print the table.

Input Format :

3 integers - S, *E* and *W* respectively

Output Format :

Fahrenheit to *Celsius* conversion table. One line for every *Fahrenheit* and *Celsius Fahrenheit* value. Fahrenheit value and its corresponding *Celsius* value should be separate by tab ("\t")

Constraints :

0 <= *S* <= 1000

```
0 <= E <= 1000
0 <= W <= 1000
Sample Input 1:
0
100
20
Sample Output 1:
0   -17
20  -6
40  4
60  15
80  26
100 37
Sample Input 2:
120
200
40
Sample Output 2:
120 48
160 71
200 93
Explanation for Sample Output 2 :
Start value is 120, end value is 200 and step size is 40. Therefore, the
values we need to convert are 120, 120 + 40 = 160, and 160 + 40 = 200.
The formula for converting Fahrenheit to Celsius is:
Celsius Value = (5/9)*(Fahrenheit Value - 32)
Plugging 120 into the formula, the celsius value will be (5 / 9)*(120 -
32) => (5 / 9) * 88 => (5 * 88) / 9 => 440 / 9 => 48.88
But we'll only print 48 because we are only interested in the integral
part of the value.

public class Solution {
   public static void printFahrenheitTable(int start, int end, int step) {
       for(int i=start; i<=end; i = i+step){
           System.out.println(i+" "+(int)((5.0/9.0)*(i-32)));
       }
   }
}
```

```
Fibonacci Number
```

Send Feedback

Given a number N, figure out if it is a member of fibonacci series or not.
Return true if the number is member of fibonacci series else false.
Fibonacci Series is defined by the recurrence

$$F(n) = F(n-1) + F(n-2)$$

where $F(0) = 0$ and $F(1) = 1$

Input Format :
Integer N
Output Format :
true or false
Constraints :
$0 <= n <= 10^4$
Sample Input 1 :
5
Sample Output 1 :
true
Sample Input 2 :
14
Sample Output 2 :
false

```
public class Solution {
    public static boolean checkMember(int n){
        int fib = 0, a=0, b=1;
        if(n==0)
            return true;
        for(int i=0; fib<=n; i++){
            fib = a+b;
            a = b;
            b = fib;
            if(n==fib)
                return true;
        }
        return false;
    }
}
```

Check for error

Send Feedback

Will the given code generate any error:

```
public static void func1(int a)
{
   System.out.print("a");
}
public static void main (String[] args) {
   func1(2.5);
}
```

Options

Attempts left: 1/2

This problem has only one correct answer

- (•) Yes
- ( ) No

Hurray! Correct Answer

Solution Description

The datatype of argument in function is int whereas we have passed a double value. So the code would generate an error.

Predict the output

Send Feedback

What will be the output of the following code:

```
public static void func2()
{
   System.out.print("#");
}
public static void func1()
{
   System.out.print("*");
   func2();
}
public static void main (String[] args) {
   func2();
   func1();
}
```

Options

This problem has only one correct answer

- ( ) #*
- (•) #*#
- ( ) ##*
- ( ) *#

Hurray! Correct Answer

Solution Description

First we call func2, and # is printed.

Then we call func1, which first prints * and then calls func2, which prints #.

So the output is #*#.

Check for error

Send Feedback

Will the given code generate any error:

```
public static void func1(int a)
{
   System.out.print("a");
}
public static void main (String[] args) {
   func1(2.5);
}
```


Options

Attempts left:

This problem has only one correct answer

- (•) Yes
- ( ) No

Hurray! Correct Answer

Solution Description

The datatype of argument in function is int whereas we have passed a double value. So the code would generate an error.

Predict the output

Send Feedback

What will be the output of the following code:

```
public static void func1(int a,int b)
{
   int ans=1;
   for(int i=0;i<b;i++)
   {
      ans*=a;
   }
   System.out.print(ans);
}
public static void main (String[] args) {
   func1(2,5);
}
```

Options

This problem has only one correct answer

- 64
- 10
- 32 ✓
- Error

Hurray! Correct Answer

Solution Description

The loop would execute 5 times.
ans=2 * 2 * 2 * 2 * 2.
ans=32.

What will be the output of the following code ?

```
public static void doubleValue(int a ){
   a = a * 2;
}
public static void main(String[] args) {
   int a = 8;
   doubleValue(a);
   System.out.println(a);
}
```

8 ✓

Correct Answer

What will be the output of the following code ?

```
public static int func(int a){
    a += 10;
    return a;
}

public static void main(String[] args) {
    int a = 5;
    func(a);
    System.out.println(a);
}
```

5

Correct Answer

What will be the output of the following code ?

```
public static int square(int a){
    int ans = a * a;
    return ans;
}

public static void main(String[] args) {
    int a = 4;
    a = square(a);
    System.out.println(a);
}
```

16

Correct Answer

Will following code generate any error ?

```
public class Main {
    public static void func(int a) {
        int b = a;
        b = b + 10;
    }

    public static void main(String[] args) {
        int a = 10;
        func(a);
        System.out.println(b);
    }
}
```

- (•) Yes
- ( ) No

Hurray! Correct Answer

Solution Description

####Code will generate error as we are trying to print value of variable b in main and there isn't any variable b created or accessible in main. Variable b in the code is created inside function _func_ and is local to this function and not accessible outside it.

Check the error

Send Feedback

Will following code generate any error ?

```
public class Main {
   public static void func(int a) {
      int b = 10;
      a = a + 10;
      System.out.println(a);
   }

   public static void main(String[] args) {
      int a = 10;
      func(a);
      System.out.println(a);
   }
}
```

Options

This problem has only one correct answer

- ○ Yes
- ◉ No

Hurray! Correct Answer

Check Prime

Send Feedback

What will be the output of the following code:

```
 public static boolean isPrime(int x)
{
   for(int i=2;i<x/2;i++)
   {
      if(x%i==0)
      return false;
   }
   return true;

}
public static void main (String[] args) {
   System.out.print(isPrime(47));
}
```

Options

This problem has only one correct answer

- ◉ true
- ○ false
- ○ error

Hurray! Correct Answer

Solution Description

The loop would execute for i=2 to 22. And 47 is not divisible by any of them.

Predict the output

Send Feedback

What will be the output of the following code:

```
public static int sum(int a,int b)
{
   System.out.print("int sum ");
   return a+b;
}
public static long sum(long a,long b)
{
   System.out.print("long sum ");
   return a+b;
}
public static void main (String[] args) {
      int a=4;
      int b=5;
   System.out.print(sum(a,b));
}
```

Options

This problem has only one correct answer

- (•) int sum 9
- ( ) long sum 9
- ( ) error
- ( ) int sum long sum 9

Hurray! Correct Answer

Solution Description

As both the datatypes are int So first function would be called.

Predict the output

Send Feedback

What will be the output of the following code:

```
public static int sum(int a,int b)
{
   System.out.print("int sum ");
   return a+b;
}
public static double sum(double a,double b)
{
   System.out.print("float sum ");
   return a+b;
}
public static void main (String[] args) {
   System.out.print(sum(5,4));
   System.out.print(sum(5.0,4.0));
}
```

Options

This problem has only one correct answer

- ( ) int sum 9
- ( ) int sum 9float sum 9
- (•) int sum 9float sum 9.0
- ( ) error

Hurray! Correct Answer

Solution Description

sum(5,4) would call the 1st Function and sum (5.0,4.0) would call 2nd Function.