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BASIC PROGRAMMING PRACTICUM REPORT

Github Project:

https://github.com/NaufalArdian12/Tugas_Akhir_Java_Semester1

Github Name: <https://github.com/safrizalrahman46>

Github Jobsheet:

<https://github.com/safrizalrahman46/Jobsheet13>

1JOBSHEET 10

Function 1

1. Learning Outcome

After finishing this lesson, students must be able to:

1. Master the basic concept of function, function parameter, return value, and scope of variable.
2. Implement Java program to create function, as well as for function with parameter, without parameter, with return value, without return value, and to call the function.

2. Labs Activity

2.1 Experiment 1: Function Without Parameter

Time: 40 minutes

1. Create a new class and save it as **Gratitude_StudentIDNumber.java**.



2. Create a function named **sayThankyou()** in the class.

```
4 | public static void sayThankyou(){  
5 |     System.out.println("Thank you for being the best teacher in the world.\n"+  
6 |         "You inspired in me a love for learning and made me feel like I could ask you anything.");  
7 | }
```

3. Create **main()** function and call **sayThankyou()** function from main function..

```
9 | public static void main(String[] args) {  
10 |     sayThankyou();  
11 | }
```

```
/**  
 * Gratitude22  
 */  
public class Gratitude22 {  
  
    public static void sayThankyou() {  
        System.out.println("Thank ypu for being the best teacher  
in the world\n"+  
        "You inspired in me a love for learning and made me feel  
like i could ask you anything");  
    } public static void main(String[] args) {  
  
        sayThankyou();  
  
    }  
  
}
```



```
public class Gratitude22 {  
    public static void sayThankyou() {  
        System.out.println("Thank ypu for being the best teacher in the world\n"+  
            "You inspired in me a love for learning and made me feel like i could ask you anything")  
    }  
    public static void main(String[] args) {  
        sayThankyou();  
    }  
}
```

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'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:60240' '-cp' 'C:\Users\Safrizal Rahman\AppData\Roaming\Code\User\workspaceSt
orage\0a9c6713586bb27f747efb56d8c7346d\redhat.java\jdt_ws\Jobsheet13_2215bcb3\bin' 'Gratitude22'
Thank ypu for being the best teacher in the world
You inspired in me a love for learning and made me feel like i could ask you anything
PS D:\VA- DATA DARI DOCUMENT KUMPULAN TUGAS JUGU\ATugasPraktek\JOBSHEET 13\Jobsheet13>

Question!

1. Does function with no parameter always have void datatype?

No, the purpose of the parameter is a variable from the outside, if we can make a variable displacement

in the function itself make parameter is not required, danni Lai

return / return will match the function declaration

2. Is it possible for sentence “Thank you for.....dst” to be displayed, without using sayThankyou() function? Modify the program so that it displays the sentence without using function!

If we modify the code to be like this

```
/**  
 * Gratitude22  
 */  
public class Gratitude22 {  
  
    public static String sayThankyou() {
```



```
String ucapan = "Thank ypu for being the best teacher
in the world\n"+
    "You inspired in me a love for learning and made me
feel like i could ask you anything"; return ucapan;
} public static void main(String[]args) {
// menggunakan fungsi
String thankYou = sayThankyou();
System.out.println(thankYou);
// tanpa fungsi
System.out.println("Thank ypu for being the best teacher
in the world\n"+
    "You inspired in me a love for learning and made me feel
like i could ask you anything");
}
}

//      public static void sayThankyou() {
//      System.out.println("Thank ypu for being the best
teacher in the world\n"+
//      "You inspired in me a love for learning and made me
feel like i could ask you anything");
//      } public static void main(String[] args) {

//      sayThankyou();

// }

// }
```



```
Gratitude22.java U X
9 | you inspired in me a love for learning and made me feel like i could ask you anything ; return ucapan;
10 |
11 | } public static void main(String[] args) {
12 |
13 | String thankYou = sayThankyou();
14 | System.out.println(thankYou);
15 |
16 | System.out.println("Thank ypu for being the best teacher in the world\n"+
17 | "You inspired in me a love for learning and made me feel like i could ask you anything");
18 | }

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Thank ypu for being the best teacher in the world
You inspired in me a love for learning and made me feel like i could ask you anything
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13> d; cd 'd:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13'; & 'C:\Program Files\Microsoft\jdk-11.0.12-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=y,address=localhost:60326' '-cp' 'c:\Users\SafriZal Rahman\AppData\Roaming\Code\User\workspaceStorage\0a9c6713586bb27f747efb56d8c7346d\redhat.java\jdt_ws\Jobsheet13_2215bcb3\bin' 'Gratitude22'
Thank ypu for being the best teacher in the world
You inspired in me a love for learning and made me feel like i could ask you anything
Thank ypu for being the best teacher in the world
You inspired in me a love for learning and made me feel like i could ask you anything
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>
```

3. What are the benefits of using functions in a program?

We can use that function many times in other functions without having to rewrite it syntaxmya again and not too complicated keitka want to loop a condition

2.2 Experiment 2: Function with Parameters

Time: 40 minutes

1. Create a new function named **sayAdditionalGreetings()** that has one parameter with String datatype, in class di dalam *class* **Gratitude_StudentIDNumber.java**!

```
9 | public static void sayAdditionalGreetings(String greeting){
10 |     System.out.println(greeting);
11 | }
```

2. Call **sayAdditionalGreetings()** function from **main()**.

```
13 | public static void main(String[] args) {
14 |     sayThankyou();
15 |     String expression = "Thankyou...wish you all the best!!";
16 |     sayAdditionalGreetings(expression);
17 | }
```

```
/**
 * Gratitude22
```



```
*/  
public class Gratitude22 {  
  
    public static String sayThankyou() {  
        String greeting = "Thank ypu for being the best  
teacher in the world\n"+  
        "You inspired in me a love for learning and made me  
feel like i could ask you anything"; return greeting;  
    } public static void main(String[]args) {  
        // menggunakan fungsi  
        String thankYou = sayThankyou();  
        System.out.println(thankYou);  
        // tanpa fungsi  
        System.out.println("Thank ypu for being the best teacher  
in the world\n"+  
        "You inspired in me a love for learning and made me feel  
like i could ask you anything");  
  
        sayThankyou();  
        String greeting = "Thankyou Mr...and Mrs... For 1  
semester teaching me";  
        sayAdditionalGreetings(greeting);  
    }  
    public static void sayAdditionalGreetings(String greeting)  
{  
        System.out.println(greeting);  
    }  
  
}  
  
//      public static void sayThankyou() {
```



```
//      System.out.println("Thank ypu for being the best
teacher in the world\n"+
//      "You inspired in me a love for learning and made me
feel like i could ask you anything");
//      } public static void main(String[] args) {

//          sayThankyou();

// }

// }
```

```
15      "You inspired in me a love for learning and made me feel like i could ask
16
17      sayThankyou();
18      String greeting = "Thankyou Mr...and Mrs... For 1 semester teaching m
19      sayAdditionalGreetings(greeting);
20  }
21  public static void sayAdditionalGreetings(String greeting) {
22      System.out.println(greeting);
```

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```
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13> & 'C:\Program Files\Microsoft\jdk-11.0.12.
pend=y,address=localhost:60374' '-cp' 'C:\Users\Safrizal Rahman\AppData\Roaming\Code\User\workspaceStorage\0a9c6713586bb27f747ef
Thank ypu for being the best teacher in the world
You inspired in me a love for learning and made me feel like i could ask you anything
Thank ypu for being the best teacher in the world
You inspired in me a love for learning and made me feel like i could ask you anything
Thankyou Mr...and Mrs... For 1 semester teaching me
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>
```



Question!

1. What is the use of a parameter in a function?

So that variables from outside the function can be used as local variables of the function

2. Is parameter similar to variable? Please explain!

In summary, a variable is a named storage location in a program, while a parameter is a variable used in a function or method definition to represent the input values. When you call a function, you provide arguments, which are the actual values that match the parameters

3. In the Java programming language, is parameter only used for passing input data?

What about output data?

Yes, for Responsible output is return or any other form of output such as

System.out.print

2.3 Experiment 3: Function with Return Value

Time: 40 minutes

1. Create a new class and save it as **Greetings_StudentIDNumber.java**.
2. Create a new function to get the recipient of the greeting named **getGreetingRecipient()** that will get the name from the user input and will return the name. That is why this method has String datatype and also has return value.

```
6      public static String getGreetingRecipient() {
7          Scanner input = new Scanner(System.in);
8          System.out.print(s:"Input the name of people you want to greet : ");
9          String recipientName = input.nextLine();
10         input.close();
11         return recipientName;
12     }
```

3. Create **main()** function and call **getGreetingRecipient()** function from main!

```
14     public static void main(String[] args) {
15         String name = getGreetingRecipient();
16         System.out.println("Thank you "+name+" May the force be with you!");
17     }
```

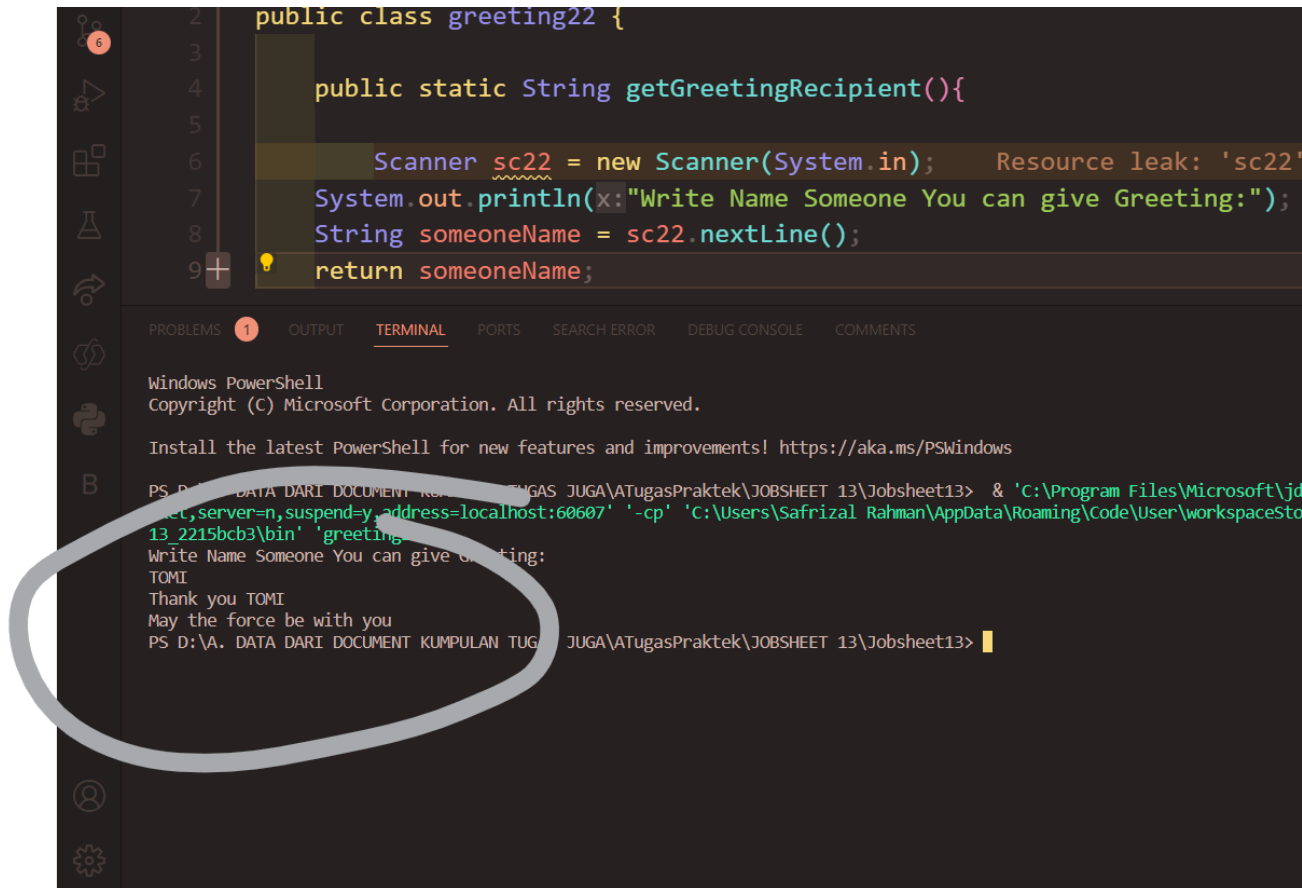
```
import java.util.Scanner;
public class greeting22 {
```




```
public static String getGreetingRecipient(){

    Scanner sc22 = new Scanner(System.in);
    System.out.println("Write Name Someone You can give
Greeting:");
    String someoneName = sc22.nextLine();
    return someoneName;
} public static void main(String[] args) {
    String name = getGreetingRecipient();

    System.out.println("Thank you "+name+"\nMay the force be
with you");
}
}
```



```

2 public class greeting22 {
3
4     public static String getGreetingRecipient(){
5
6         Scanner sc22 = new Scanner(System.in);
7         System.out.println("Write Name Someone You can give Greeting:");
8         String someoneName = sc22.nextLine();
9         return someoneName;
10    }
11 }

```

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PS D:\A\DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13> & 'C:\Program Files\Microsoft\jdk-11.0.16-hotspot\bin\java.exe' -cp 'C:\Users\Safrizal Rahman\AppData\Roaming\Code\User\workspaceStorage\13_2215bcb3\bin' 'greeting22' &&
Write Name Someone You can give Greeting:
TOMI
Thank you TOMI
May the force be with you
PS D:\A\DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>

Question!

1. Explain when do we need to create a function that requires a return value?

When we want the value of a function it is stored and will be used in another function

2. Can a **System.out.println** statement be added inside a function with a return value?

What is its impact?

Yes, but only if you use the System.out.println we can not menyimpan in

a variable

3. Can a function without a return value be called inside the main function without being passed to a variable? Like in experiment 1? Explain!

Could be because in Experiment 1 the function uses Sytem.out.println when the function

called then it will do what is in the function that is printing thanks....dsb

Experiment 4:



2.4 Experiment 4: Calling Function from the Other Function

Time: 50 minutes

1. Create a new class and name it as **ExpressingGratitude_StudentIDNumber.java**. In this class, we will attempt to combine the functions that we have previously created in the **Gratitude** and **Greetings** classes.
2. Create **getGreetingRecipient()** function, that will return the recipient's name after getting the input from the user.

```

6  public static String getGreetingRecipient() {
7      Scanner input = new Scanner(System.in);
8      System.out.print(s:"Input the name of people you want to greet : ");
9      String recipientName = input.nextLine();
10     input.close();
11     return recipientName;
12 }

```

3. Create **sayThankyou()** function, in this function, get the recipient for the greeting by calling **getGreetingRecipient()** function. The recipient will be included in the thank you expression (sentence).

```

13 public static void sayThankyou(){
14     String name = getGreetingRecipient();
15     System.out.println("Thank you "+name+" for being the best teacher in the world.\n"+
16         "You inspired in me a love for learning and made me feel like I could ask you anything.");
17 }

```

4. Create **main()** function and call **sayThankyou()** function from there.

```

18 public static void main(String[] args) {
19     sayThankyou();
20 }

```

```

import java.util.Scanner;
public class ExpressingGratitude22 {

    public static String getGreetingRecipient(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Write Name Someone You can give
Greeting:");
        String namaOrang = sc.nextLine(); sc.close();
        return namaOrang;
    }
}

```



```

    public static void sayThankyou() {
        String nama = getGreetingRecipient();
        System.out.println("Thank you "+nama+" for being the
best teacher in the world\n"+
        "You inspired in me a love for learning and made me
feel like i could ask you anything");
    } public static void main(String[] args) {
        sayThankyou();
    }
}

```

```

PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13> & 'C:\Program Files\Microsoft\jdk-11.0.12-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:60683' '-cp' 'C:\Users\Safrizal_Rahman\AppData\Roaming\Java\jdt_ws\Jobsheet13_2215bcb3\bin' 'ExpressingGratitude22'
Write Name Someone You can give Greeting:
tholib
Thank you tholib for being the best teacher in the world
You inspired in me a love for learning and made me feel like i could ask you anything
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>

```

Question!

1. Based on experiment 4, which function will execute first? Please explain!

Starts from main and then main () calls the function say thank you () and then inside the function

Acknowledgements () call the function Receiveaccept (), run Receiveaccept ()

before I say thank you...D.C., where they say thank you



2. Which is the correct way to write a function inside a class? Above the main function or below the main function? Please explain!

Free because it does not affect the program, the main function will definitely be run first

even if it's on the last line

3. Modify the above program by adding the function **sayAdditionalGreetings()** with a String input parameter. The **sayAdditionalGreetings()** function contains additional remarks or greetings that you want to convey to the greeting recipient.

```
4. import java.util.Scanner;
5. public class ExpressingGratitude22 {
6.
7.     public static String getGreetingRecipient(){
8.         Scanner sc = new Scanner(System.in);
9.         System.out.println("Write Name Someone You can
give Greeting:");
10.        String namaOrang = sc.nextLine(); sc.close();
11.        return namaOrang;
12.    }
13.
14.        public static void sayThankyou() {
15.            String nama = getGreetingRecipient();
16.            System.out.println("Thank you "+nama+" for
being the best teacher in the world\n"+
17.            "You inspired in me a love for learning and
made me feel like i could ask you anything");
18.        }
19.    } public static void main(String[] args) {
20.        sayThankyou();
21.        String nama = getGreetingRecipient();
22.        String greeting = "Thank you "+nama+" wish
you all the best";
23.        greetingAdd(greeting);
```



```

23.
24.     }
25.
26.     public static void greetingAdd(String greeting) {
27.         System.out.println(greeting);
28.     }
29. }
30.
    
```

The screenshot shows an IDE with a Java file. The code defines a `greetingAdd` method that prints a greeting string. The terminal window shows the execution of the program, where the user enters a name and the program prints a personalized message. The terminal output is as follows:

```

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Write Name Someone You can give Greeting:
gil
Thank you gil for being the best teacher in the world
You inspired in me a love for learning and made me feel like i could ask you anything
Write Name Someone You can give Greeting:
Exception in thread "main" java.util.NoSuchElementException: No line found
    at java.base/java.util.Scanner.nextLine(Scanner.java:1651)
    at ExpressingGratitude22.getGreetingRecipient(ExpressingGratitude22.java:7)
    at ExpressingGratitude22.main(ExpressingGratitude22.java:16)
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>
    
```

2.5 Experiment 5: Variable Arguments (Varargs)

Time: 40 minutes

1. Create a new class and name it as **Experiment5_StudentIDNumber.java**.
2. Create **show()** function that has **void** datatype, and has 2 parameters with **String** and **int** datatype



```

4  ✓ static void show (String str, int... a){
5      System.out.println("String: "+str);
6      System.out.println("Number of arguments/parameters: " + a.length);
7
8  ✓      for (int i : a) {
9          System.out.print(i + " ");
10     }
11     System.out.println();
12 }

```

3. Create **main** function and call **show()** function from there.

```

14 ✓ public static void main(String[] args) {
15     show(str:"Programming Fundamentals 2023", ...a:100, 200);
16     show(str:"Information Tehcnology", ...a:1, 2, 3, 4, 5);
17     show(str:"Informatics");
18 }

```

```

public class Experiment522 {

    static void show(String str, int... a){
        System.out.println("String: "+str);
        System.out.println("Total argunem/parameter: "+ a.length);
    for (int i : a) {
        System.out.print(i+" ");
    }
        System.out.println();
    } public static void main(String[]args) {
        show("Daspro 2023 @ SAPRII", 100,200);
        show("Bussines Information System", 1,2,3,4,5);
        show("Polythecnyc Malang");
    }
}

```



```
8 | }  
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PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>  
pend=y,address=localhost:52583' '-cp' 'C:\Users\Safrizal Rahman\AppData\Roaming\Code\U  
String: Daspro 2023 ? SAPRII  
Total argunem/parameter: 2  
100 200  
String: Bussines Information System  
Total argunem/parameter: 5  
1 2 3 4 5  
String: Polythecnyc Malang  
Total argunem/parameter: 0  
  
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>
```

Question!

1. Explain why the parameter in experiment 5 is written as **int... a!**

Because There are Variable arguments

2. Mention the example of varargs in implementing code to solve real-world problems!
(at least 3)

*** Finding the average**

*** Mathematical operations**

*** Print a list of names**

3. Can we use two different data types for varargs in one function? Provide an example!

**Can not, because in the first and subsequent parameters will always be a variable
normally only the last paramater can be variable arguments**

2.6 Experiment 6: Writing Code, with and without Function

Time: 50 minutes

1. Create a new class and name it as **Experiment6_StudentIDNumber.java**.
2. Create a program to calculate the area of rectangle and volume of cube, without using function!

```

13     public static void main(String[] args) {
14         Scanner input = new Scanner (System.in);
15         int p, l, t, L, vol;
16         System.out.print(s:"Input length = ");
17         p = input.nextInt();
18         System.out.print(s:"Input width = ");
19         l = input.nextInt();
20         System.out.print(s:"Input height = ");
21         t = input.nextInt();
22
23         L = p*l;
24         System.out.println("Area of the rectangle = " + L);
25         vol = p*l*t;
26         System.out.println("Volume of the rectangle = "+vol);
27     }
    
```

3. The above code, if we implement using function, there will be at least 3 functions: **calculateArea**, **calculateVolume** and **main** function.

```

5  ✓ static int calculateArea (int l, int w) {
6      int area = l*w;
7      return area;
8  }
9  ✓ static int calculateVolume (int l, int w, int h) {
10     int vol = calculateArea(l, w)*h;
11     return vol;
12 }
Run | Debug
13 ✓ public static void main(String[] args) {
14     Scanner input = new Scanner (System.in);
15     int p, l, t, L, vol;
16     System.out.print(s:"Input length = ");
17     p = input.nextInt();
18     System.out.print(s:"Input width = ");
19     l = input.nextInt();
20     System.out.print(s:"Input height = ");
21     t = input.nextInt();
22
23     L = calculateArea(p, l);
24     System.out.println("Area of the rectangle = " + L);
25     vol = calculateVolume(t, p, l);
26     System.out.println("Volume of the rectangle = "+vol);
27 }
    
```



4. Run the program and write down the result you got!

```
5.   import java.util.Scanner;
6.
7.   public class Experiment622 {
8.       static void Luas(int p,int l){
9.           int luas=p*l;
10.          System.out.println("Square Area Is "+luas);
11.      } static void Volume(int p,int l,
12.          int t){ int vol = p*l*t;
13.          System.out.println("Beam volume is "+vol);
14.      } public static void main(String[] args) { Scanner
sc = new
15.          Scanner(System.in);
16.          System.out.print("enter length : ");
17.          int p=sc.nextInt();
18.          System.out.print("enter width : ");
19.          int l=sc.nextInt();
20.          System.out.print("enter height : ");
21.          int t =sc.nextInt();
22.          Luas(p, l);
23.          Volume(p, l, t);
24.      }
25.  }
26.
```



```
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PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>
pend=y,address=localhost:53409' '-cp' 'C:\Users\Safrizal Rahman\AppData\Roaming\Code\U
enter length : 12
enter width : 12
enter height : 11
Square Area Is 144
Beam volume is 1584
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>
```

Question!

1. Explain the execution steps for experiment 6 above!

Starting from the main function in which it inputs the value of p,l, t and then calls the broad function

parameter int p, int l in which multiplies p and l and then stored in a wide variable

and print the area and then go back to main and call the volume function with parameter int p,

int l, int t in which will multiply the variables p, l, and t and then stored in the variable vol

then print vol



2. What is the output of the program below, then explain the steps of the program!

```

1 public class programKu {
2     public static void TampilHinggaKei(int i) {
3         for (int j = 1; j <= i; j++) {
4             System.out.print(j);
5         }
6     }
7
8     public static int Jumlah (int bil1, int bil2) {
9         return (bil1 + bil2);
10    }
11
12    public static void TampilJumlah (int bil1, int bil2) {
13        TampilHinggaKei(Jumlah(bil1, bil2));
14    }
15
16    public static void main (String[] args) {
17        int temp = Jumlah(1, 1);
18        TampilJumlah(temp, 5);
19    }
20 }

```

- The output is 1234567

- The flow must be started from play and then play calls the number function which will add 1+1 and the result will be stored in temp which is value 2, then main call the function Shownumber with parameters 2 and 5 and in the Shownumber function is called Appearinghinggakei but because the parameter is a function of the sum of the sum function in run it first so that it is 2+5 then the parameter from Showinghinggakei is 7. then loop inside the function will print 1-7

3. When do we need to create a function with and without parameters? When do we need to create a function with and without return value? Explain!

Using parameters when we need variables from outside

We use the return value when it needs to be saved

3. Assignment Time: 100 minutes

1. Create a new class named **CubeStudentIDNumber** that has function to calculate area and volume!
2. Create a program to manage the weekly grades (there are 7 weeks) of 5 students. The data must be implemented using 2 dimensional array as follows:



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Sari	20	19	25	20	10	0	10
Rina	30	30	40	10	15	20	25
Yani	5	0	20	25	10	5	45
Dwi	50	0	7	8	0	30	60
Lusi	15	10	16	15	10	10	5

Add functions to retrieve information from the above data with the following details:

- Function to input students' grade data.
 - Function to display all student grades from the first week to the seventh week.
 - Function to find the week that has the highest grade from all students.
 - Function to find the student with the highest grade (also display the grade information for each week).
3. Modify assignment number 2 above by getting the user input to determine the number of students and the number of weeks!

```

4.  import java.util.Scanner;
5.
6.  public class cube22 {
7.      static void Volume(int s){
8.          int vol = s*s*s;
9.
10.         System.out.println("Volume Cube : "+vol);
11.     } static void Extensibility(int s){
12.         int Extensibility=s*s*6;
13.         System.out.println("The surface area of
the cube is :"+Extensibility);
14.     } public static void main(String[]args) {
Scanner sc = new

```



```

15.         Scanner(System.in);
16.         System.out.print("Enter the length of the
side of the cube :"); int sisi=sc.nextInt();
Volume(sisi);
17.         Extensibility(sisi);
18.     }
19. }
20.

```

The screenshot shows an IDE with a Java file named `cube22.java`. The code defines a `cube22` class with two static methods: `Volume` and `Extensibility`. The `Volume` method calculates the volume of a cube given its side length `s`. The `Extensibility` method calculates the surface area of a cube given its side length `s`. The terminal output shows the program being run, with the user entering `100` for the side length. The output displays the volume as `1000000` and the surface area as `60000`.

```

cube22.java > cube22
Comment Code
3 public class cube22 {
4     static void Volume(int s){
5         int vol = s*s*s;
6
7         System.out.println("Volume Cube : "+vol);
8     } static void Extensibility(int s){
9         int Extensibility=s*s*6;
10        System.out.println("The surface area of the cube is : "+Extensibility);
11    }
12 }
Run | Debug
PROBLEMS 3 OUTPUT TERMINAL PORTS SEARCH ERROR DEBUG CONSOLE COMMENTS
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13> & 'C:\Program Files\Java\jdk-11.0.10\bin\java.exe' -cp 'C:\Users\Safrizal Rahman\AppData\Roaming\Code\User\workspace' -Duser.dir=D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13 -jar 'C:\Users\Safrizal Rahman\AppData\Roaming\Code\User\workspace\cube22.jar'
Enter the length of the side of the cube :100
Volume Cube : 1000000
The surface area of the cube is : 60000
PS D:\A. DATA DARI DOCUMENT KUMPULAN TUGAS JUGA\ATugasPraktek\JOBSHEET 13\Jobsheet13>

```

Group Assignment

Implement the function into your group project. Don't forget, make sure the source code is pushed to your repository.

```

import java.text.SimpleDateFormat;
import java.time.LocalDate;
import java.util.Date;

```



```
import java.util.Scanner;

public class Expedition {

    static Scanner scanner = new Scanner(System.in);

    // Declaration Login
    static int usign = 3, psign = 3;
    static String[] Log = { "Safrizal", "Naufal", "Vahira", "Tarno" };
    static String[] pass = { "Admin1", "Admin2", "Admin3", "Admin4" };
    static boolean signUp = false, login = false, menuLog = false, menu = true, lagi = true;
    static String namaLog = "", passLog, date = "", again, namaSignup, passSignup = "",
passSignup1;
    static int option, repret = 0, user = -1;
    static int userChoice;

    // Array Kota dan harga
    static String[][] perkiraan = {
        { "Surabaya", "Malang", "100", "12000" },
        { "Surabaya", "Jakarta", "780", "14000" },
        { "Surabaya", "Pasuruan", "70", "10000" },
        { "Malang", "Surabaya", "100", "12000" },
        { "Malang", "Jakarta", "850", "21000" },
        { "Malang, Pasuruan", "75", "10000" },
        { "Jakarta", "Malang", "850", "21000" },
        { "Jakarta", "Surabaya", "780", "14000" },
        { "Jakarta", "Pasuruan", "820", "22000" },
        { "Pasuruan", "Malang", "75", "10000" },
        { "Pasuruan", "Surabaya", "70", "10000" },
        { "Pasuruan", "Jakarta", "820", "22000" },
```



```
};  
  
// int[] perkiraanharga = {{ }};  
  
// untuk Input  
  
static String fromWhere = "";  
static String toWhere = "";  
static String paymentType = "";  
static String formattedDate = "";  
static String expeditionName = "";  
static String recipientName = "";  
static String inputDate = "";  
static String anything = "";  
  
// static String Recieve = "";  
  
static int totalGoods = 0, weight = 0, day = 0;  
static int startDate = 0, endDate = 0;  
  
static double totalDistance = 0.0, rangeTime = 0.0, distanceCost = 0.0;  
static double costPerTime = 0.0, totalCost = 0.0, costPerKilometer = 0.0;  
  
static void SignUp() {  
    System.out.println(" |=====|");  
    System.out.println("          Sign Up          ");  
    System.out.println(" |=====|");  
    System.out.printf("Apply the username : ");  
    namaSignup = scanner.next();  
    if (namaSignup.length() < 3) {  
        ClearScreen();  
        System.out.println("Minimum 3 text ");  
        SignUp();  
    }  
    for (int i = 0; i < usign; i++) {  
        if (namaSignup.equals(Log[i])) {
```




```
        System.out.println("Username has logged in on another account");
        SignUp();
    }
}

System.out.print("Type password : ");
passSignup1 = scanner.next();
System.out.print("Repeat password : ");
passSignup = scanner.next();
if (passSignup.equals(passSignup1)) {
    String[] newNama = new String[usign + 1];
    usign++;
    for (int i = 0; i < Log.length; i++) {
        newNama[i] = Log[i];
    }
    Log = newNama;
    String[] newPass = new String[psign + 1];
    psign++;
    for (int i = 0; i < pass.length; i++) {
        newPass[i] = pass[i];
    }
    pass = newPass;
    Log[usign - 1] = namaSignup;
    pass[psign - 1] = passSignup;
    ClearScreen();
    System.out.println("Your account has been succes registered ");
    Login();
} else {
    ClearScreen();
    System.out.println("The password is not sincron !!!");
    SignUp();
}
```



```
    }  
}  
  
static void Login() {  
    user = -1;  
    System.out.println(" |=====|");  
    System.out.println(" |          Login          |");  
    System.out.println(" |=====|");  
    System.out.printf("Input username : ");  
    namaLog = scanner.next();  
    for (int i = 0; i < Log.length; i++) {  
        if (namaLog.equals(Log[i])) {  
            user = i;  
            break;  
        }  
    }  
    System.out.print("Input Password : ");  
    passLog = scanner.next();  
    if (user == -1) {  
        ClearScreen();  
        System.out.println("wrong username or password ");  
        Login();  
    }  
    if (passLog.equals(pass[user])) {  
        ClearScreen();  
        MainMenu();  
    } else {  
        System.out.print("\033[H\033[2J");  
        System.out.println("wrong username or password");  
    }  
}
```



```
}
```

```
static void MenuInput() {
```

```
    System.out.println("Welcome to the Expedition Java Application!");
```

```
    System.out.print("Please enter the sender name: ");
```

```
    expeditionName = scanner.nextLine();
```

```
    System.out.print("Please enter the recipient name: ");
```

```
    recipientName = scanner.nextLine();
```

```
    // System.out.print("Please enter the start date (DD-MM-YYYY): ");
```

```
    // startDate = scanner.nextInt();
```

```
    // System.out.print("Please enter the end date (DD-MM-YYYY): ");
```

```
    // endDate = scanner.nextInt();
```

```
    ClearScreen();
```

```
    System.out.println(" |=====| ");
```

```
    System.out.println("Malang");
```

```
    System.out.println("Surabaya");
```

```
    System.out.println("Jakarta");
```

```
    System.out.println("Pasuruan");
```

```
    System.out.println(" |=====| ");
```

```
    System.out.print("From where : ");
```

```
    fromWhere = scanner.nextLine();
```

```
    ClearScreen();
```



```
System.out.println(" |=====| ");
System.out.println("Malang");
System.out.println("Surabaya");
System.out.println("Jakarta");
System.out.println("Pasuruan");
System.out.println(" |=====| ");
```

```
System.out.print("To Where : ");
toWhere = scanner.nextLine();
```

```
int row = 0;
for (int i = 0; i < perkiraan.length; i++) {
    for (int j = 0; j < perkiraan[i].length; j++) {
        if (perkiraan[i][j].equalsIgnoreCase(fromWhere)) {
            if (perkiraan[i][j + 1].equalsIgnoreCase(toWhere)) {
                row = i;
            }
        }
    }
}
```

```
totalDistance = Double.parseDouble(perkiraan[row][2]);
```

```
// menampilkan tanggal sekarang
Date currentDate = new Date();
LocalDateTime localDateTime = LocalDateTime.now();
day = localDateTime.getDayOfMonth();
SimpleDateFormat format = new SimpleDateFormat("dd/MM/yyyy");
formattedDate = format.format(currentDate);
```



```
System.out.println("Date Now : " + formattedDate);

// menginput tanggal perkiraan
System.out.print("Enter an estimation date (dd/MM/yyyy) : ");
inputDate = scanner.nextLine();

// mengubah tanggal perkiraan dari String ke Date
SimpleDateFormat inputDateFormat = new SimpleDateFormat("dd/MM/yyyy");
try {
    Date expectedDate = inputDateFormat.parse(inputDate);
    System.out.println("The estimation dates for shipping the goods is : " +
expectedDate);
} catch (Exception e) {
    System.out.println("Incorrect date Format entered.");
}

ClearScreen();
System.out.print("Please enter Range Time days : ");
rangeTime = scanner.nextDouble();
scanner.nextLine(); // Consume newline

System.out.print("Please enter the weight of Goods: ");
weight = scanner.nextInt();
scanner.nextLine();

System.out.print("Please enter the total number of Goods: ");
totalGoods = scanner.nextInt();
scanner.nextLine();
```



```
distanceCost = Double.parseDouble(perkiraan[row][3]);

// Calculations kilogrma
int costPerKg = 4000; // fixed price reference by JNE
//weight = 10kg
//totalGoods = 2
//distanceCost = 12000
// simulation = 4000 * (10 * 2) + 12000

totalCost = costPerKg * (totalGoods * weight) + distanceCost;
ClearScreen();
MainMenu();
}

static void NewPass() {
    System.out.print("Input New Password: ");
    String newPass = scanner.next();
    pass[user] = newPass;
    System.out.println("Password changed successfully!");
    MainMenu();
}

static void Account() {
    System.out.println("Username: " + Log[user]);
    System.out.println("Password: " + pass[user]);
    System.out.println("Insert anything to go back");
    anything = scanner.nextLine();
}
```



```
static void Detail() {  
    System.out.println("\nExpedition Details + Payment:");  
    System.out.println("Name: " + expeditionName);  
    System.out.println("Start Date: " + formattedDate);  
    System.out.println("Range Time : " + rangeTime);  
    System.out.println("End Date: " + inputDate);  
    System.out.println("Total Distance (km): " + totalDistance);  
    System.out.println("Cost Distance: " + distanceCost);  
    System.out.println("weight of good: " + weight);  
    System.out.println("Total Goods: " + totalGoods);  
    System.out.println("Total Cost: " + totalCost);  
    System.out.println(" |=====| ");  
    System.out.println(" |          Payment          |");  
    System.out.println(" |=====| ");  
  
    System.out.print("Payment type (Direct / COD) : ");  
    String paymentType = scanner.nextLine();  
    Double paymentAmount = 0.0;  
    Double remain = 0.0;  
  
    if(paymentType.contains("COD")) {  
        System.out.println(" |=====| ");  
        System.out.println(" |          Payment : Not yet paid off |");  
        System.out.println(" |=====| ");  
    } else {  
        System.out.print("Payment amount : ");  
        paymentAmount = scanner.nextDouble();  
        remain = paymentAmount - totalCost;  
        System.out.println(" |=====| ");  
        System.out.println(" |          Payment : Paid off          |");  
    }  
}
```



```
        System.out.println(" |                               | ");
        System.out.println(" |           Remain fee : Rp. "+remain+" | ");
        System.out.println(" |=====| ");

    }

    ClearScreen();

    System.out.println("Insert anything to go back");

    anything = scanner.nextLine();
    MainMenu();
}

static void Recieve(){

    System.out.println(" |=====| ");
    System.out.println(" |  Resi : Express"+getAlphaNumericString(7)+ " | ");
    System.out.println(" |=====| ");
    System.out.println("Sender Name: " + expeditionName);
    System.out.println("Cost Distance: " + distanceCost);
    System.out.println("weight of good: " + weight);
    System.out.println("Total Goods: " + totalGoods);
    System.out.println("Total Cost: " + totalCost);
    System.out.println(" |=====| ");
    System.out.println("Recipient Name: " + recipientName);
    System.out.println("From: " + fromWhere);
    System.out.println("To: " + toWhere);
    System.out.println(" |=====| ");
```




```
// System.out.println(          paymentType = "");
String paymentType = scanner.nextLine();
System.out.println("|   Shipment Type : "+paymentType+   "|");
System.out.println("|=====| ");

}
static String getAlphaNumericString(int n)
{

    // choose a Character random from this String
    String AlphaNumericString = "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
        + "0123456789"
        + "abcdefghijklmnopqrstuvwxyz";

    // create StringBuffer size of AlphaNumericString
    StringBuilder sb = new StringBuilder(n);

    for (int i = 0; i < n; i++) {

        // generate a random number between
        // 0 to AlphaNumericString variable length
        int index
            = (int)(AlphaNumericString.length()
                * Math.random());

        // add Character one by one in end of sb
        sb.append(AlphaNumericString
            .charAt(index));
    }
```



```
return sb.toString();  
}
```

```
static void Additional() {  
    System.out.println("\nAdditional Information:");  
    if (totalDistance > 1000) {  
        System.out.println("This is a long expedition!");  
    } else {  
        System.out.println("This is a short expedition.");  
    }  
}
```

```
if (totalGoods > 50) {  
    System.out.println("Large group! Special arrangements may be needed.");  
} else {  
    System.out.println("Manageable group size.");  
}
```

```
if (costPerKilometer > 2.5) {  
    System.out.println("The expedition may be costly.");  
} else {  
    System.out.println("The expedition is reasonably priced.");  
}  
System.out.println("Insert anything to go back");  
anything = scanner.nextLine();  
MainMenu();  
}
```

```
static void MainMenu() {
```



```
System.out.println(" |=====|");
System.out.println(" |      Logged In Menu      |");
System.out.println(" |=====|");
System.out.println(" |      1. Go to Option Menu      |");
System.out.println(" |      2. Change Password      |");
System.out.println(" |      3. View Account Info     |");
System.out.println(" |      4. Detail & Payment      |");
System.out.println(" |      5. View additional information |");
System.out.println(" |      6. Print Recieve        |");
System.out.println(" |      6. Logout              |");
System.out.println(" |=====| ");
System.out.printf("Choose an option: ");
userChoice = scanner.nextInt();
scanner.nextLine();

switch (userChoice) {
    case 1:
        ClearScreen();
        MenuInput();
    case 2:
        ClearScreen();
        NewPass();
    case 3:
        ClearScreen();
        Account();
    case 4:
        ClearScreen();
        Detail();
    case 5:
        ClearScreen();
```



```
        Additional();
    case 6:
        ClearScreen();
        Recieve();
    case 7:
        Run();
    default:
        ClearScreen();
        System.out.println("Wrong input");
        MainMenu();
    }
}

static void ClearScreen() {
    System.out.print("\033[H\033[2J");
    System.out.flush();
}

static void Run() {
    System.out.println(" |=====|");
    System.out.println(" ");
    System.out.println("      EXPEDITION      ");
    System.out.println(" ");
    System.out.println(" |=====|");
    System.out.println("1. SignUp First if you dont have account");
    System.out.println("2. Login If you Have an account Before");
    option = scanner.nextInt();
    ClearScreen();
    switch (option) {
        case 1:
```



```
        SignUp();
    case 2:
        Login();
    default:
        System.out.println("Wrong input");
        Run();
    }
}

public static void main(String[] args) {
    ClearScreen();
    Run();
}
}
```