

LAPORAN PRAKTIKUM  
PEMROGRAMAN TERSTRUKTUR  
PRAKTIKUM I – PENDAHULUAN  
KELAS B



Disusun Oleh:

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## A. Tugas 1 - "Hello World!" in C

Problem	Submissions	Leaderboard	Discussions	Editorial
<p><b>Objective</b></p> <p>In this challenge, we will learn some basic concepts of C that will get you started with the language. You will need to use the same syntax to read input and write output in many C challenges.</p> <p><b>Task</b></p> <p>This challenge requires you to print <i>Hello, World!</i> on a single line, and then print the already provided input string to <code>stdout</code>.</p> <p>Note: You do not need to read any input in this challenge.</p> <p><b>Input Format</b></p> <p>You do not need to read any input in this challenge.</p> <p><b>Output Format</b></p> <p>Print <i>Hello, World!</i> on the first line, and the string from the given input on the second line.</p> <p><b>Sample Input 0</b></p> <pre>Welcome to C programming.</pre> <p><b>Sample Output 0</b></p> <pre>Hello, World! Welcome to C programming.</pre>				

Jawaban :

Kode Program

```
C hello.c x
1  #include <stdio.h>
2  #include <string.h>
3  #include <math.h>
4  #include <stdlib.h>
5
6  int main()
7  {
8
9      char s[100];
10     scanf("%[^\n]%*c", s);
11
12     printf("Hello, World!\n");
13     printf("%s", s);
14
15     return 0;
16 }
17
```

## Output

```
PS D:\_PROGRAMMING\practice-B\Nidya Tiana> cmd /c "hello.exe"
Welcome to C programming.
Hello, World!
Welcome to C programming.
```

## Penjelasan

Pada tugas 1 masukkan user menggunakan perintah scanf yang disimpan pada variable 's'. Variabel 's' bertipe string dengan panjang 100 character. Output format tersebut menginginkan output menjadi 2 baris. Baris 1 merupakan "Hello, World!" dan baris 2 merupakan "Welcome to C programming.". Pada perintah scanf terdapat [^\n] yang berarti character akan diperiksa ketika user mengklik tombol enter.

#include <stdio.h> pada baris pertama merupakan sebuah preprocessor. pada pernyataan kode program di atas menyatakan untuk memberitahukan compiler untuk mengikut sertakan informasi yang ada dalam pustaka stdio.h ke dalam program tersebut. int main() { pada baris ke enam, merupakan sebuah fungsi utama yang akan berlaku sebagai badan program. merupakan satu-satunya fungsi yang dieksekusi dan semua pernyataan di dalam fungsi tersebut akan di eksekusi oleh kompilator. Printf("Hello, World!"); merupakan sebuah fungsi yang digunakan untuk menampilkan tulisan di layar. "hello world" merupakan sebuah argumen yang diberikan kepada fungsi tersebut sebagai dua kata yang akan ditampilkan di layar, dan fungsi \n adalah untuk memberi space atau line. Printf("%s", s); merupakan fungsi untuk menampilkan string pada keluaran. Return 0; merupakan pernyataan yang akan mengembalikan nilai 0 ke fungsi utama, yang menandakan program berjalan dengan sukses.

## B. Tugas 2 - Playing With Characters

### Problem

[Submissions](#)[Leaderboard](#)[Discussions](#)[Editorial](#)

### Objective

This challenge will help you to learn how to take a character, a string and a sentence as input in C.

To take a single character `ch` as input, you can use `scanf("%c", &ch);` and `printf("%c", ch)` writes a character specified by the argument `ch` to `stdout`.

```
char ch;  
scanf("%c", &ch);  
printf("%c", ch);
```

This piece of code prints the character `ch`.

You can take a string as input in C using `scanf("%s", s)`. But, it accepts string only until it finds the first space.

In order to take a line as input, you can use `scanf("%[^\n]%+c", s);` where `s` is defined as `char s[MAX_LEN]` where **`MAX_LEN`** is the maximum size of `s`. Here, `[]` is the scanset character. `^\n` stands for taking input until a newline isn't encountered. Then, with this `%+c`, it reads the newline character and here, the used `+` indicates that this newline character is discarded.

**Note:** After inputting the character and the string, inputting the sentence by the above mentioned statement won't work. This is because, at the end of each line, a new line character (`\n`) is present. So, the statement: `scanf("%[^\n]%+c", s);` will not work because the last statement will read a newline character from the previous line. This can be handled in a variety of ways and one of them being: `scanf("\n");` before the last statement.

### Task

You have to print the character, `ch`, in the first line. Then print `s` in next line. In the last line print the sentence, `sen`.

### Input Format

First, take a character, `ch` as input.

Then take the string, `s` as input.

Lastly, take the sentence `sen` as input.

### Output Format

Print three lines of output. The first line prints the character, `ch`.

The second line prints the string, `s`.

The third line prints the sentence, `sen`.

### Sample Input 0

```
C  
Language  
Welcome To C!!
```

### Sample Output 0

```
C  
Language  
Welcome To C!!
```

Jawaban :

### Kode Program

```
C hello.c C Playing With Characters.c x
1  #include <stdio.h>
2  #include <string.h>
3  #include <math.h>
4  #include <stdlib.h>
5
6  int main()
7  {
8      char ch;
9      scanf("%c\n", &ch);
10
11     char s[100];
12     scanf("%s\n", s);
13
14     char sen[100];
15     scanf("%[^\\n]*c", sen);
16
17     printf("%c\n", ch);
18     printf("%s\n", s);
19     printf("%s\n", sen);
20
21     return 0;
22 }
```

### Output

```
PS D:\_PROGRAMMING\practice-B\Nidya Tiana> cmd /c "Playing With Characters.exe"
C
Language
Welcome To C!!
C
Language
Welcome To C!!
```

### Penjelasan

Pada tugas 2 inisiasi yang digunakan adalah char ch, char s dengan panjang string 100, dan char sen dengan panjang string 100. Masukkan user menggunakan perintah scanf yang disimpan pada variable 'ch', 's', dan 'sen'. Pada perintah scanf terdapat [^\\n] yang berarti character akan diperiksa ketika user menekan tombol enter. Pada perintah printf digunakan variable 'ch', 's', dan 'sen' untuk mencetak keluaran yang sama dengan masukannya dengan "\\n" untuk memisahakan baris 1, baris 2, dan baris 3.

## C. Tugas 3 - Sum and Difference of Two Numbers

### Problem

[Submissions](#)[Leaderboard](#)[Discussions](#)[Editorial](#)

### Objective

The fundamental data types in C are int, float and char. Today, we're discussing int and float data types.

The `printf()` function prints the given statement to the console. The syntax is `printf("format string", argument_list);`. In the function, if we are using an integer, character, string or float as argument, then in the format string we have to write `%d` (integer), `%c` (character), `%s` (string), `%f` (float) respectively.

The `scanf()` function reads the input data from the console. The syntax is `scanf("format string", argument_list);`. For ex: The `scanf("%d", &number)` statement reads integer number from the console and stores the given value in variable `number`.

To input two integers separated by a space on a single line, the command is `scanf("%d %d", &n, &m)`, where `n` and `m` are the two integers.

### Task

Your task is to take two numbers of int data type, two numbers of float data type as input and output their sum:

1. Declare **4** variables: two of type int and two of type float.
2. Read **2** lines of input from stdin (according to the sequence given in the 'Input Format' section below) and initialize your **4** variables.
3. Use the `+` and `-` operator to perform the following operations:
  - Print the sum and difference of two int variable on a new line.
  - Print the sum and difference of two float variable rounded to one decimal place on a new line.

### Input Format

The first line contains two integers.

The second line contains two floating point numbers.

### Constraints

- $1 \leq \text{integer variables} \leq 10^4$
- $1 \leq \text{float variables} \leq 10^4$

### Output Format

Print the sum and difference of both integers separated by a space on the first line, and the sum and difference of both float (scaled to **1** decimal place) separated by a space on the second line.

### Sample Input

```
10 4
4.0 2.0
```

### Sample Output

```
14 6
6.0 2.0
```

### Explanation

When we sum the integers **10** and **4**, we get the integer **14**. When we subtract the second number **4** from the first number **10**, we get **6** as their difference.

When we sum the floating-point numbers **4.0** and **2.0**, we get **6.0**. When we subtract the second number **2.0** from the first number **4.0**, we get **2.0** as their difference.

Jawaban :

### Kode Program

```
C hello.c  C Playing With Characters.c  C Sum and Difference of Two Numbers.c x
1  #include <stdio.h>
2  #include <string.h>
3  #include <math.h>
4  #include <stdlib.h>
5
6  int main()
7  {
8      int a, b;
9      float c, d;
10
11     scanf("%d %d", &a, &b);
12     scanf("%f %f", &c, &d);
13     printf("%d %d\n", a+b, a-b);
14     printf("%.1f %.1f", c+d, c-d);
15
16     return 0;
17 }
18
```

### Output

```
PS D:\_PROGRAMMING\practice-B\Widya Tiana> cmd /c "Sum and Difference of Two Numbers.exe"
10 4
4.0 2.0
14 6
6.0 2.0
```

### Penjelasan

Pada tugas 3 terdapat 4 variabel, yaitu 2 variabel bertipe integer dan 2 variabel bertipe float. Masukkan user menggunakan perintah scanf yang akan disimpan pada variabel 'a' dan 'b' untuk tipe integer dan masukkan user menggunakan perintah scanf yang akan disimpan pada variabel 'c' dan 'd' untuk tipe float. Output yang diinginkan adalah hasil penjumlahan dan pengurangan dari masing-masing variabel yang tipenya sama. "%.1f %.1f" merupakan output bilangan yang menghasilkan 1 angka dibelakang koma.