OverviewofC,Constants,Variablesand Data Types

Ex.No.: **Date:**

Say"Hello,World!"WithC

ProblemStatement:

Thisisasimplechallengetohelpyoupracticeprintingtostdout.
We're starting out by printing the most famous computing phrase of all time! In the editor below, use either printf or cout to print the string Hello, World! to stdout.

InputFormat
Youdonotneedtoreadanyinputinthischallenge.

OutputFormat
Print***Hello,World!***tostdout.

SampleOutput1
Hello,World!

Program:

```c
#include<stdio.h>
int main()
    {
        printf("Hello, World!");
    return 0;

    }
```

	Expected	Got	
✓	Hello, World!	Hello, World!	✓

Passed all tests! ✓

Ex.No.: **Date:**

PlayingwithCharacters

ProblemStatement:

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)writesacharacterspecifiedbytheargumentchartostdout:

```
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 itacceptsstringonly untilitfindsthe firstspace.
In order to take a line as input, you can use scanf("%[^\n] %*c", s); where **s** is defined as chars [**MAX_LEN**] where MAX_LEN is the maximum size of**s**. Here, [] is the scanset character.^\nstandsfortakinginputuntilanewlineisn'tencountered.Then,withthis %*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 mentionedstatementwon'twork.Thisisbecause,attheendofeachline,anewline character(\n) is present. So, the statement: scanf("%[^\n] %*c", s); will not work because thelaststatementwillreadanewlinecharacterfromthepreviousline.Thiscanbehandled 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 thelast line print the sentence, **sen.**

InputFormat
First,takeacharacter,**ch**asinput.Thentakethestring,**s**asinput.Lastly,takethe sentence **sen** as input

OutputFormat
Printthreelinesofoutput.Thefirstlineprintsthecharacter,**ch**.Thesecondlineprints the string, **s**. The third line prints the sentence, **sen**.

SampleInput1
C
program
ProgrammingusingC
Sample Output 1
C
program
ProgrammingusingC

Program:

```c
#include<stdio.h>
int main()
{
    char ch;
    scanf("%c",&ch);
    printf("%c",ch);
    return 0;
}
```

	Input	Expected	Got	
✓	C	C	C	✓

Passed all tests! ✓

Ex.No.: **Date:**

SumandDifferenceofTwoNumbers

ProblemStatement:

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

The printf() function prints the given statement to the console. The syntax is printf("format string",argument_list);.Inthefunction,ifweareusinganinteger,character,stringorfloat asargument,theninttheformatstringwehavetowrite%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 numberfrom the console and storesthegiven valueinvariable ***number***.
Toinputtwointegersseparatedbyaspaceonasingleline,thecommandisscanf("%d %d",&n,&m),where***n***and***m***arethetwointegers.

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

1. Declare***4***variables:twooftypeintandtwooftypefloat.
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. Usethe+and-operatortoperformthefollowingoperations:
   - Printthesumanddifferenceoftwointvariableonanewline.
   - Printthesumanddifferenceoftwofloatvariableroundedtoonedecimalplaceon a new line.

InputFormat
Thefirstlinecontainstwointegers.Thesecondlinecontainstwofloatingpointnumbers.
Constraints: $1 \leq integervariables \leq 10^4, 1 \leq floatvariables \leq 10^4$

OutputFormat
Print the sum anddifference of both integers separated by a space on the first line, and thesumanddifferenceofbothfloat(scaledto ***1***decimalplace)separatedbyaspaceon the second line.

SampleInput
104
4.02.0

SampleOutput
146
6.02.0

Program:

```c
#include<stdio.h>
int main()
{
    int a,b;
    float c,d;
    scanf("%d %d",&a,&b);
    scanf("%f %f",&c,&d);
    printf("%d %d\n", a+b, a-b );
    printf("%.1f %.1f\n",c+d, c-d);
    return 0;


}
```

	Input	Expected	Got	
✓	10 4 4.0 2.0	14 6 6.0 2.0	14 6 6.0 2.0	✓
✓	20 8 8.0 4.0	28 12 12.0 4.0	28 12 12.0 4.0	✓

Passed all tests! ✓

Ex.No.: **Date:**

AverageMarks

ProblemStatement

Writeaprogramtoinputaname(asasinglecharacter)andmarksofthreetestsasm1, m2,andm3ofastudentconsideringallthethreemarkshavebeengiveninintegerformat.

Now, you need to calculate the average of thegiven marks and print it along with the name as mentioned in the output format section.

Allthetestmarksareinintegersandhencecalculatetheaverageinintegeraswell.That is, you need to print the integer part of the average only and neglect the decimal part.

InputFormat:

Line1:Name(Singlecharacter)
Line2:Marksscoredinthe3testsseparatedbysinglespace.

OutputFormat:
Firstlineofoutputprintsthenameofthestudent.Secondlineoftheoutputprintsthe average mark.

Constraints
Marksforeachstudentlieintherange0to100(bothinclusive)

SampleInput1:
A
346

SampleOutput1:
A
4

Program:

```c
#include<stdio.h>
int main()
 {    char ch;
      int m1,m2,m3;
      scanf("%c",&ch);
      scanf("%d %d %d",&m1,&m2,&m3);
      printf("%c \n",ch);
      printf("%d",(m1+m2+m3)/3);
      return 0;
 }
```

	Input	Expected	Got	
✓	A 3 4 6	A 4	A 4	✓
✓	T 7 3 8	T 6	T 6	✓
✓	R 0 100 99	R 66	R 66	✓

Passed all tests! ✓

Ex.No.: **Date:**

BasicData Types

ProblemStatement:

SomeCdatatypes,theirformatspecifiers,andtheirmostcommonbitwidthsareas follows:

- *Int("%d"):*32Bitinteger
- *Long("%ld"):*64bitinteger
- *Char("%c"):*Character type
- *Float("%f"):* 32bit realvalue
- *Double("%lf"):*64bitrealvalue

Reading

Toreadadatatype,usethefollowingsyntax:scanf("`format_specifier`",&val) For example, to read a *character* followed by a *double*: char ch;

```
doubled;
scanf("%c%lf",&ch,&d);
```

Forthemoment,wecanignorethespacingbetweenformatspecifiers.

Printing

To print a data type, use the following syntax: printf("`format_specifier`", val)
For example, to print a*character* followedby a *double*: char ch= 'd';

```
double d = 234.432;
printf("%c%lf",ch,d);
```

Note: Youcanalsouse*cin*and*cout*insteadof*scanf*and*printf*;however,ifyouaretaking a million numbers as input and printing a million lines, it is faster to use *scanf* and *printf*.

InputFormat

Input consists of the following space-separated values:*int*, *long*, *char*, *float*, and*double*, respectively.

OutputFormat

Print each element on a new line in the same order it was received as input. Note that the floating-point value should be correct up to 3 decimal places and the double to 9 decimal places.

SampleInput

```
3
12345678912345
a
334.23
14049.30493
```

SampleOutput

```
3
12345678912345
a
334.230
14049.304930000
```

Program:

```
 8
 9  %ld %c %f %lf",&a,&b,&c,&d,&e);
10   \n%ld \n%c \n%.3f \n%.9lf\n",a,b,c,d,e);
11
12
```

	Expected	Got	
4049.30493	3 12345678912345 a 334.230 14049.304930000	3 12345678912345 a 334.230 14049.304930000	✓

Passed all tests! ✓

Ex.No.: **Date:**

ASCIIValueandAdjacentCharacters

ProblemStatement:

WriteaprogramtoprinttheASCIIvalueandthetwoadjacentcharactersofthegiven character.

InputFormat: Readsthecharacter

Output Format: First line prints the ascii value, second line prints the previous character and next character of the input character

SampleInput1:

E

SampleOutput1:

69
DF

Program:

```c
#include<stdio.h>
int main()
  {
      char ch;
      scanf("%c",&ch);
      printf("%d\n",ch);
      printf("%c %c",ch-1, ch+1);


      return 0;
  }
```

	Input	Expected	Got	
✓	E	69 D F	69 D F	✓

Passed all tests! ✓