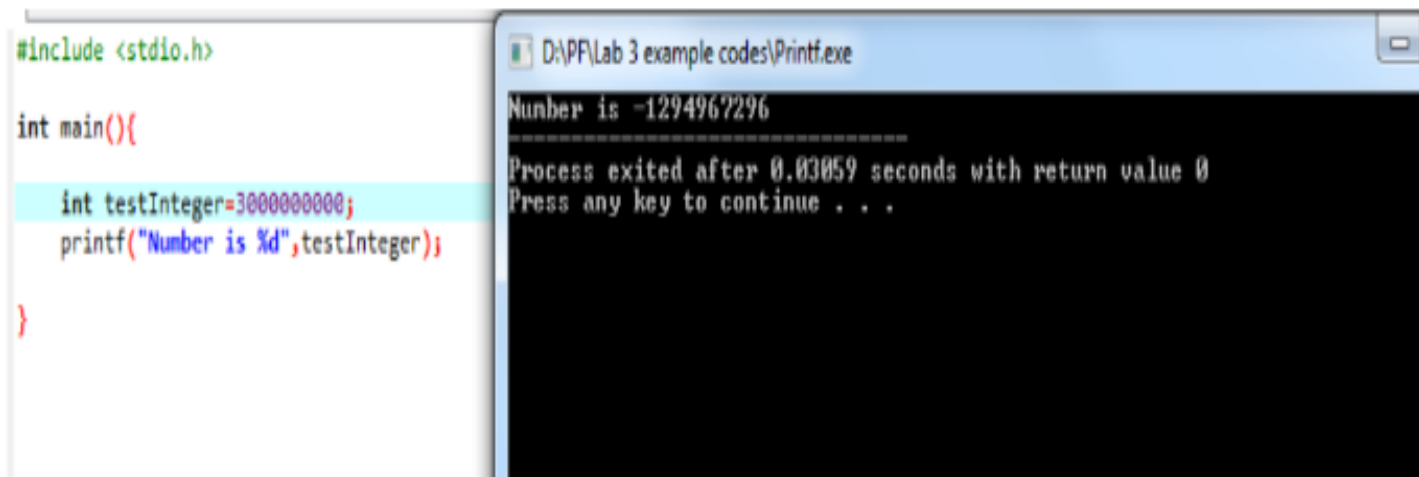MUHAMMAD UMER FAROOQ

24K-0514

PF LAB:3

QUESTION#1

Explain the output of this C program. Why the wrong value is being displayed in the output?

```c
#include <stdio.h>

int main(){

    int testInteger=3000000000;
    printf("Number is %d",testInteger);

}
```

```
D:\PF\Lab 3 example codes\Printf.exe

Number is -1294967296
=====================================
Process exited after 0.03059 seconds with return value 0
Press any key to continue . . .
```

ANS: Because integer datatype in C language can only store value up to 2147483647 that's why it is showing wrong output.

QUESTION#2

Write a C program that takes two integer values as input from the user. Then swap the values taken from the user and display the output of the variables.

```c
#include<stdio.h>
int main()
{
    int a,b,c;
    printf("enter number1:");
    scanf("%d",&a);
    printf("enter number2:");
    scanf("%d",&b);
    c=a;
    a=b;
    b=c;
    printf("number 1 is %d \nnumber 2 is %d",a,b);
    return 0;
}
```

QUESTION#3

A customer asks the IT firm to develop a program in C language, which can take tax rate and

salary from the user on runtime and then calculate the tax, the user has to pay and the salary

he/she will have after paying the tax. This information is then provided to the user.

```c
#include<stdio.h>
int main(){
    float taxrate,salary,tax,revisedsalary;
     printf("enter salary:");
    scanf("%f",&salary);

    printf("enter taxrate:");
    scanf("%f",&taxrate);

    tax=(salary*taxrate)/100;
    revisedsalary=salary-tax;

    printf("tax is:%.2f \nrevised salary is:%.2f",tax,revisedsalary);
    return 0;
}
```

OUTPUT:


```
Command Prompt

Microsoft Windows [Version 10.0.19045.4651]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP>gcc taxrate.c -o taxrate.exe

C:\Users\HP>taxrate.exe
enter salary:80000.0
enter taxrate:5.2
tax is:4160.00
revised salary is:75840.00
C:\Users\HP>
```

QUESTION#4

A car travelled back and forth from point A to point B. With a distance being (single trip) 1207KM. During the forward trip fuel price was 118/liter while returning it was 123/liter. Calculate the total fuel cost (both ways) and the fuel consumed (total trip). Use the car's fuel average as input from the user (Input must be positive make some restrictions on only accepting positive input)

```c
C fuelcost.c X

C: > Users > HP > Documents > PF LAB > C fuelcost.c > main()
1    #include<stdio.h>
2    int main(){
3    int distance=1207,fuelprice=118,fuelpricereturn=123,averagefuel,fuelconsumed,fuelcost,fuelcostreturn;//distance is taken in kilometers
4    //and fuel price in liters
5    printf("enter average fuel:");
6    scanf("%u",&averagefuel);
7
8    fuelconsumed=distance/averagefuel;
9    fuelcost=fuelconsumed*fuelprice;
10
11   fuelcostreturn=fuelconsumed*fuelpricereturn;
12
13    fuelconsumed=fuelconsumed*2;
14    fuelcost=fuelcost+fuelcostreturn;
15
16   printf("total fuel consumed: %u total fuel cost: %u",fuelconsumed,fuelcost);
17   return 0;
18   }
```

OUTPUT:

Command Prompt

```
Microsoft Windows [Version 10.0.19045.4651]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP>gcc fuelcost.c -o fuelcost.exe

C:\Users\HP>fuelcost.exe
enter average fuel:8
total fuel consumed: 300 total fuel cost: 36150
C:\Users\HP>
```
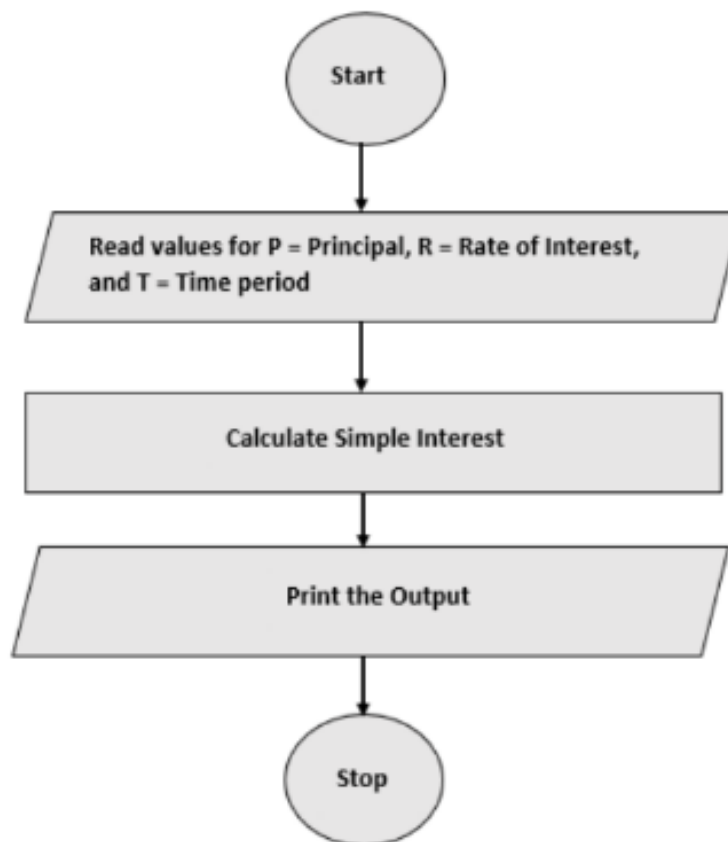
QUESTION#5

Construct a C program with the flowchart below. The input value of the principle must be between 100 Rs. To 1,000,000 Rs. The Rate of interest must be between 5% to 10% and Time Period must be between 1 to 10 years. Hint: these restrictions can be displayed in the form of message on the window.
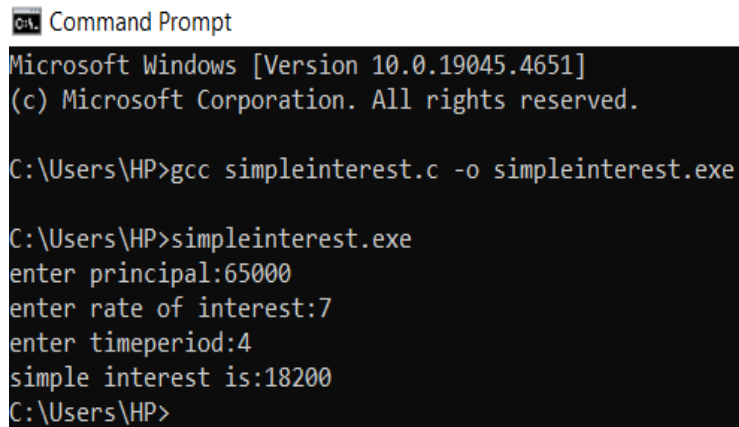
Start

Read values for P = Principal, R = Rate of Interest, and T = Time period

Calculate Simple Interest

Print the Output

Stop

```c
#include<stdio.h>
int main(){
    int principal,rateofinterest,timeperiod,simpleinterest;
    printf("enter principal:");
    scanf("%d",&principal);
    printf("enter rate of interest:");
    scanf("%d",&rateofinterest);
    printf("enter timeperiod:");
    scanf("%d",&timeperiod);

simpleinterest=(principal*rateofinterest*timeperiod)/100; //principal must be between 100 Rs to 1000000 Rs,Rate of interest must be
                                                          //between 5% to 10% and Time Period must be bwteen 1 to 10 years.
    printf("simple interest is:%d",simpleinterest);
return 0;

}
```
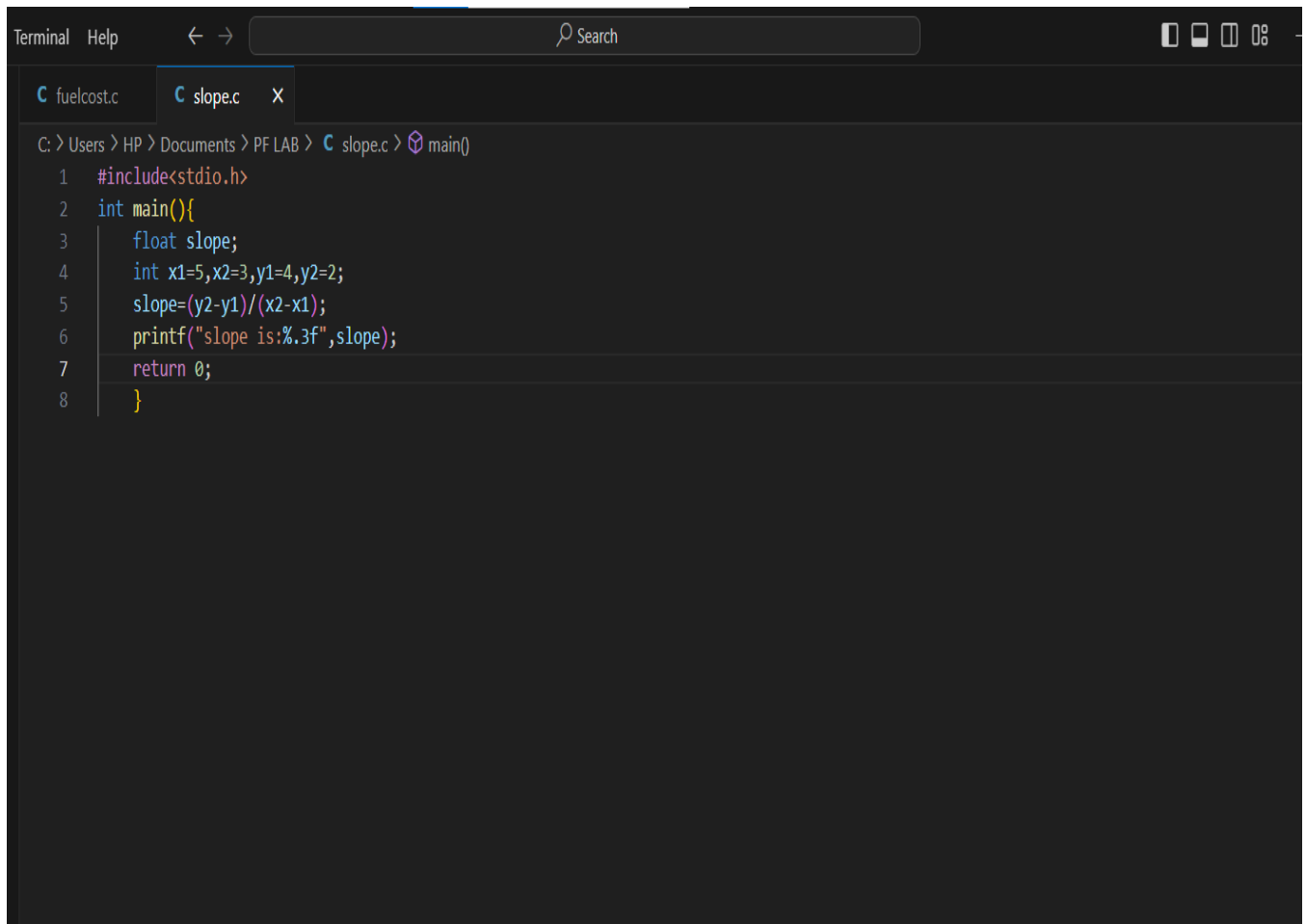
OUTPUT:


```
Command Prompt

Microsoft Windows [Version 10.0.19045.4651]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP>gcc simpleinterest.c -o simpleinterest.exe

C:\Users\HP>simpleinterest.exe
enter principal:65000
enter rate of interest:7
enter timeperiod:4
simple interest is:18200
C:\Users\HP>
```

Question#6

Construct a C program where you calculate the slope of two point (5,4), (3,2). Use format specifiers to cap the result to 3 decimal places.

C fuelcost.c   C slope.c   X

C: › Users › HP › Documents › PF LAB › C slope.c › ⊘ main()

```c
1    #include<stdio.h>
2    int main(){
3        float slope;
4        int x1=5,x2=3,y1=4,y2=2;
5        slope=(y2-y1)/(x2-x1);
6        printf("slope is:%.3f",slope);
7        return 0;
8        }
```

OUTPUT:


```
Command Prompt

Microsoft Windows [Version 10.0.19045.4651]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP>gcc slope.c -o slope.exe

C:\Users\HP>slope.exe
slope is:1.000
C:\Users\HP>
```