Assignment

Q1. Write a C program for calculating the price of a product after adding the sales tax to its original price. Where rate of tax and price is inputted by user.

```c

#include <stdio.h>

int main()
{
    int r,p,st,tp;
    printf("enter rate and price of product");
    scanf("%d %d",&r,&p);
    st=(p*r)/100;
    tp=st+p;
    printf(" the final price-%d",tp);

    return 0;
}

```

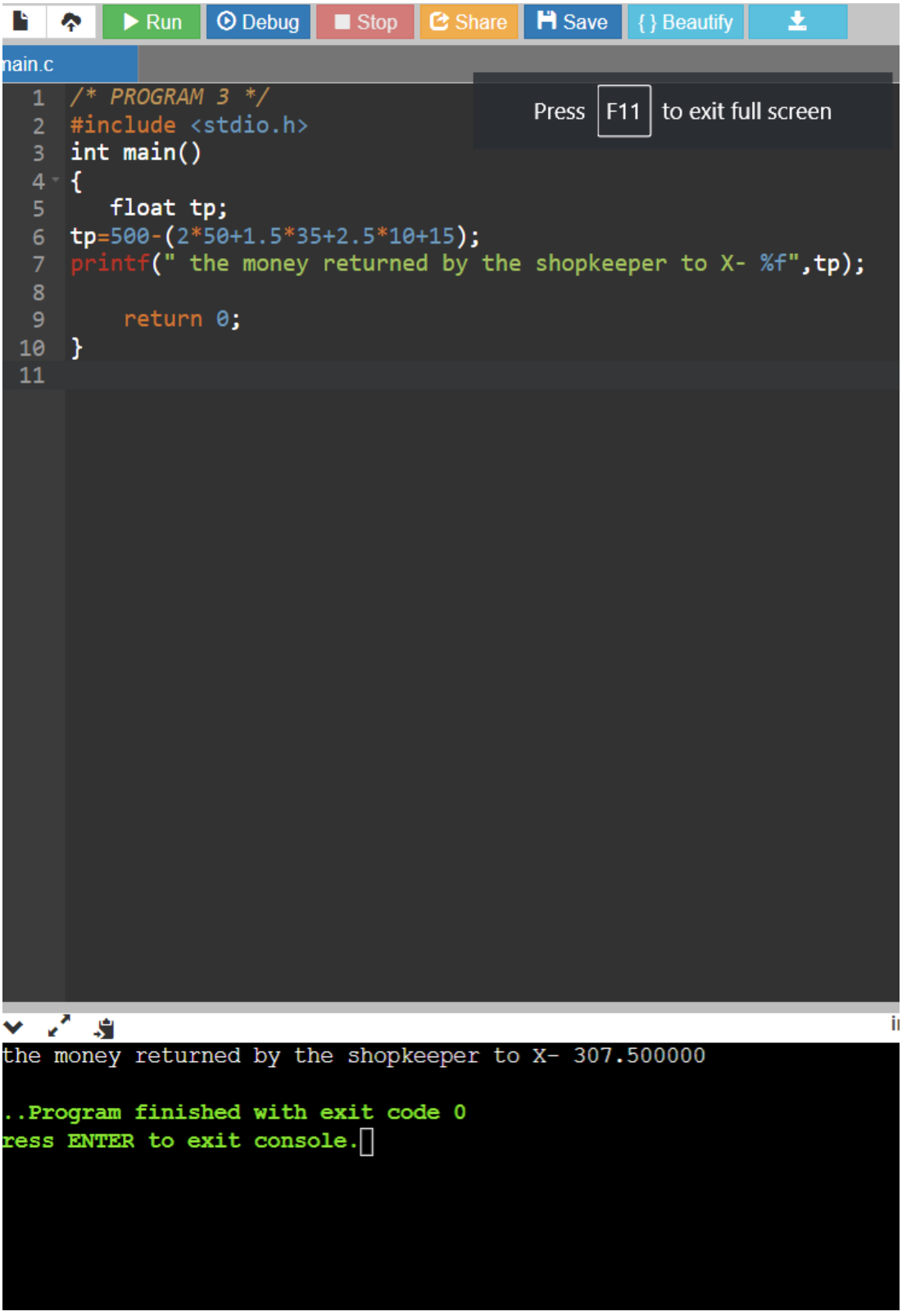
```
enter rate and price of product10 100000
 the final price-110000

...Program finished with exit code 0
Press ENTER to exit console.
```

Q2. Write a C program to calculate the weekly wages of an employee. The pay depends on wages per hour and number of hours worked. Moreover, if the employee has worked for more than 30 hours, then he or she gets twice the wages per hour, for every extra hour that he or she has worked.

```c
/* PROGRAM 2 */
#include <stdio.h>
int main()
{
   int wh,nh,e,ts;
printf("enter the wages per hour and no. of hours ");
scanf("%d %d",&wh,&nh);
if(nh>30)
{
e=nh-30;
ts=(30*wh)+(e*2*wh);

}
else
{
ts=nh*wh;
}
printf(" the total salary is-%d",ts);

    return 0;
}

```

```
enter the wages per hour and no. of hours 10000 45
 the total salary is-600000

...Program finished with exit code 0
Press ENTER to exit console.
```

Q.3 Mr. X goes to market for buying some fruits and vegetables. He is having a currency of Rs 500 with him for marketing. From a shop, he purchases 2.0 kg Apple priced Rs. 50.0 per kg, 1.5 kg Mango priced Rs.35.0 per kg, 2.5 kg Potato priced Rs.10.0 per kg, and 1.0 kg Tomato priced Rs.15 per kg. He gives the currency of Rs. 500 to the shopkeeper. Find out the amount shopkeeper will return to X by writing a C program.



Q4.Write a C program to print your name, date of birth and mobile number in 3 different lines.

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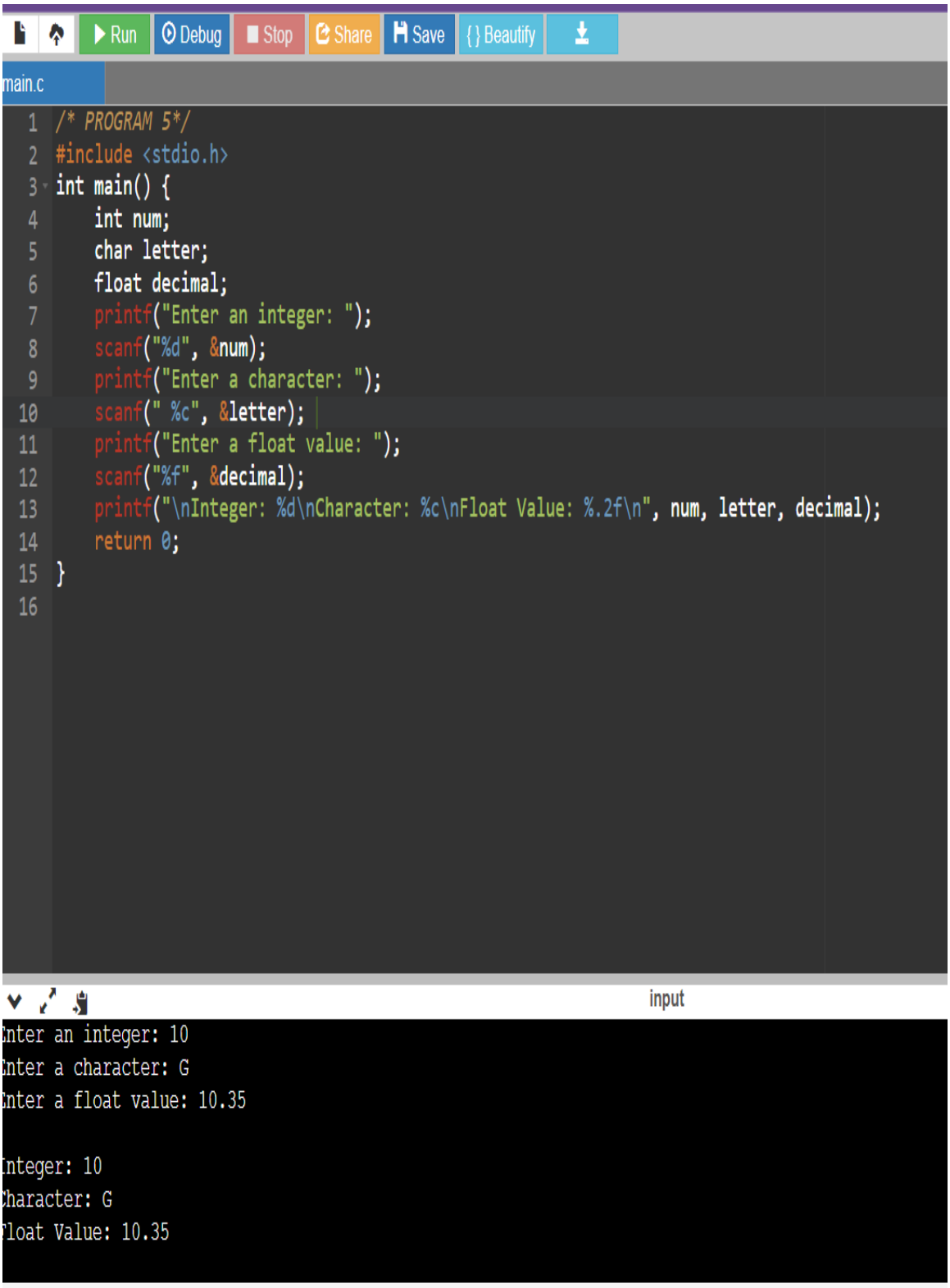
main.c

```c
/*PROGRAM 4*/
#include <stdio.h>
int main()
{
    int b=0;
    char name=' ';
    long dob;
    long mobileNumber;
    printf("Enter your date of birth in DDMMYYYY format : ");
    scanf("%ld",&dob);
    printf("Enter your mobile number: ");
    scanf("%ld",&mobileNumber);
    printf("Enter your name and write a '*' at the end of name : ");
    for(int a=0;a<=50;a++)
    {
        scanf("%c",&name);
        while(a==1)
        {
            printf("\nName -");
            a++;
        }

        if(name=='*')
        break;
        else
        {
            printf("%c",name);

        }
    }
    printf("\nDate of Birth: %ld\n", dob);
    printf("Mobile Number: %ld\n", mobileNumber);
    return 0;
}
```

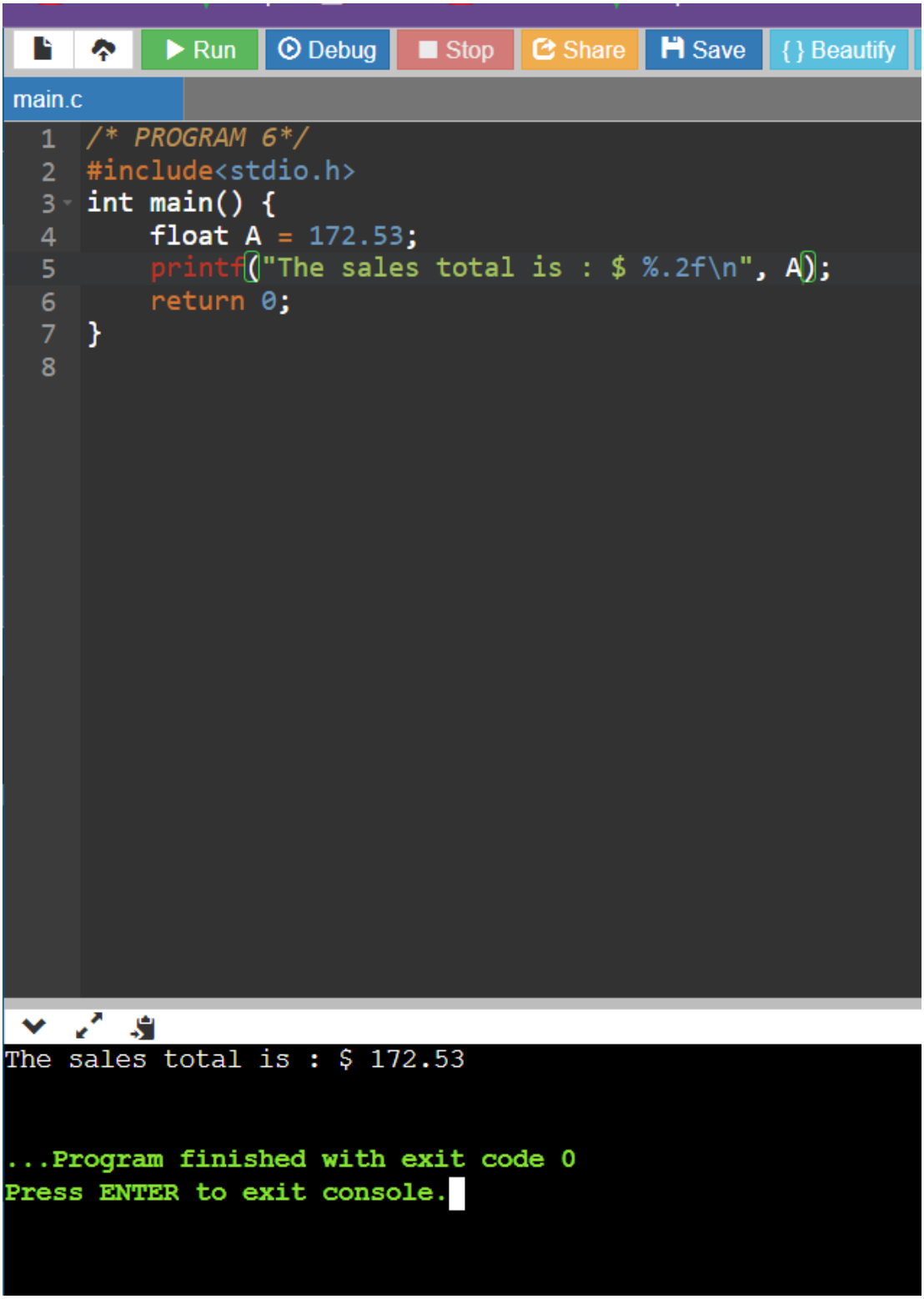
```
Enter your date of birth in DDMMYYYY format : 19092004
Enter your mobile number: 9988776655
Enter your name and write a '*' at the end of name :
KETAN SINGH*

Name -KETAN SINGH
Date of Birth: 19092004
Mobile Number: 9988776655


...Program finished with exit code 0
Press ENTER to exit console.
```

Q5.Write a program to read an integer, a character and a float value from keyboard and display the same in different lines on the screen.

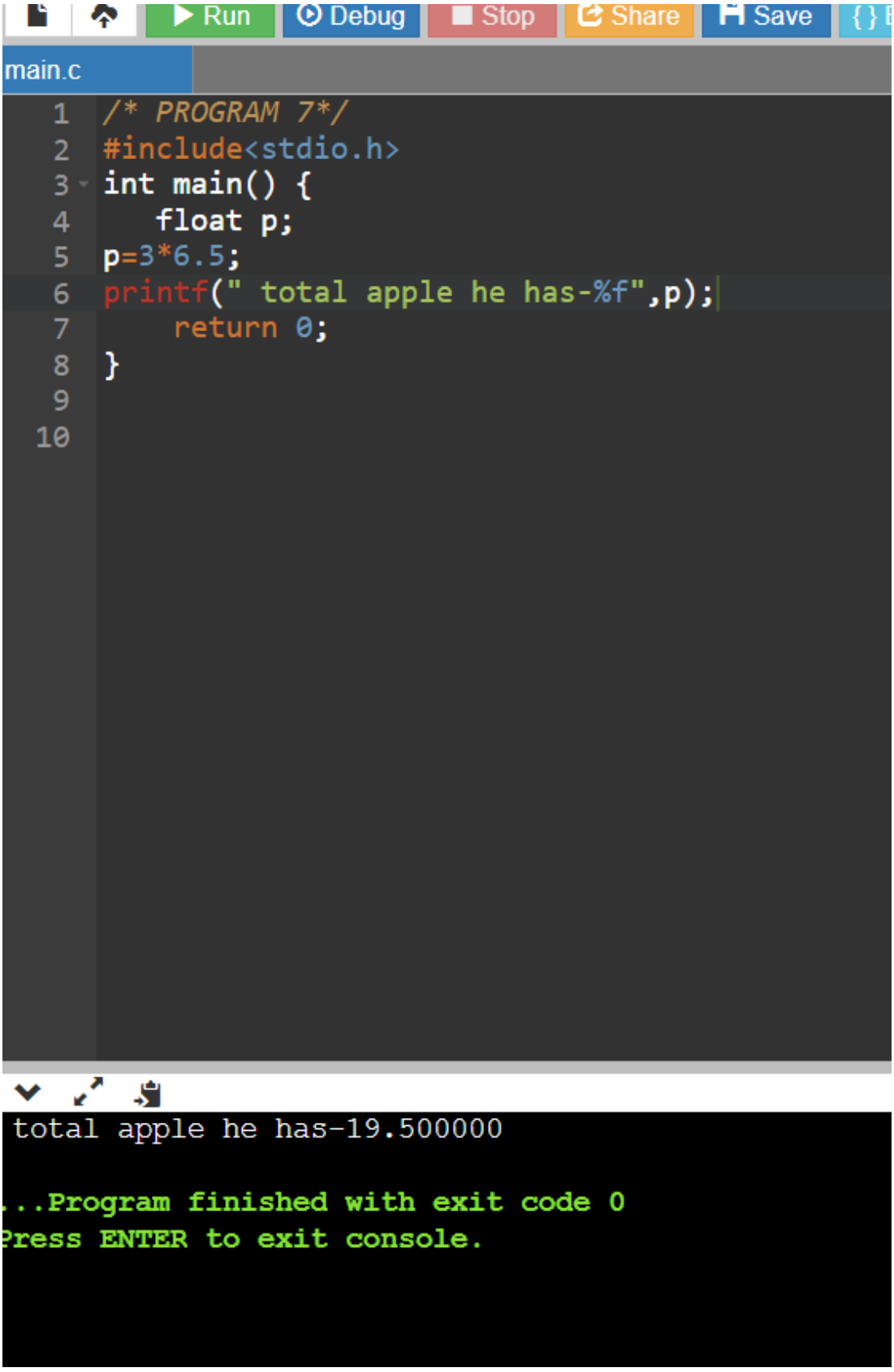


Q6.Write a program to print the following line (Assume the total value is contained in a variable named cost)

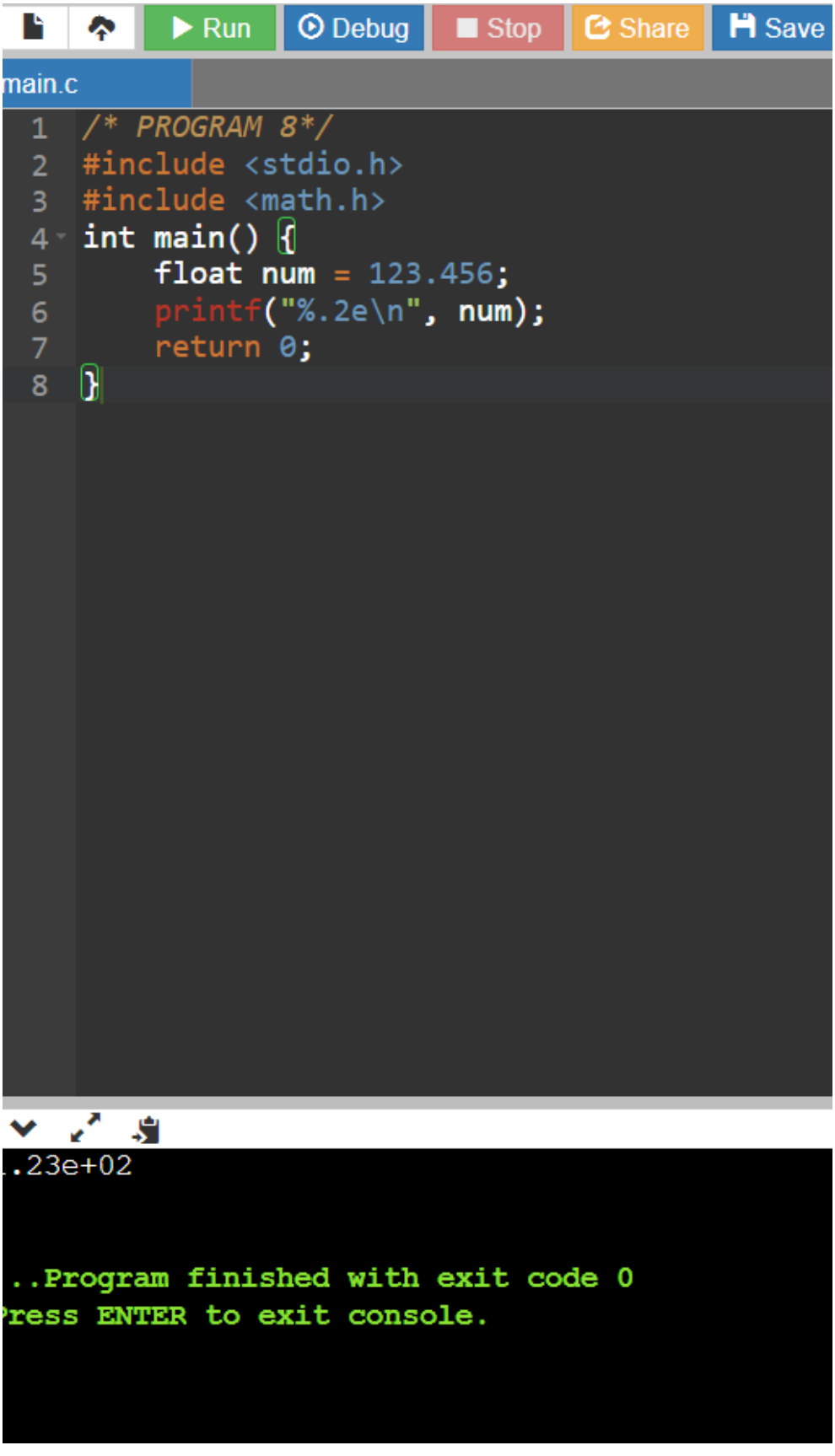
The sales total is : $ 172.53



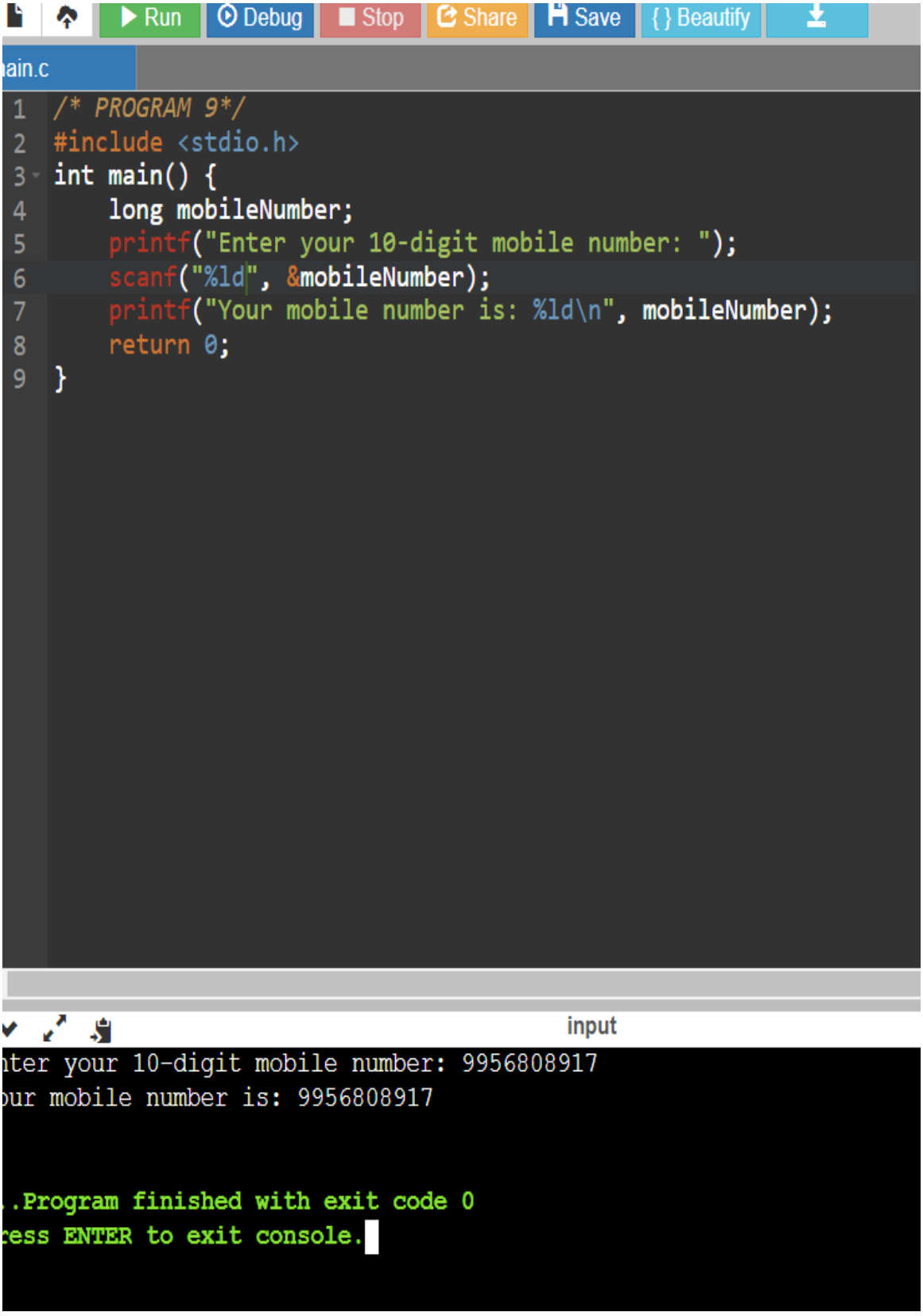
Q7.Raju got 6 and half apples from each of Raghu, Sheenu and Akash. He wants to know how many apples he has in total without adding them. Write a program which could help Raju in doing this.



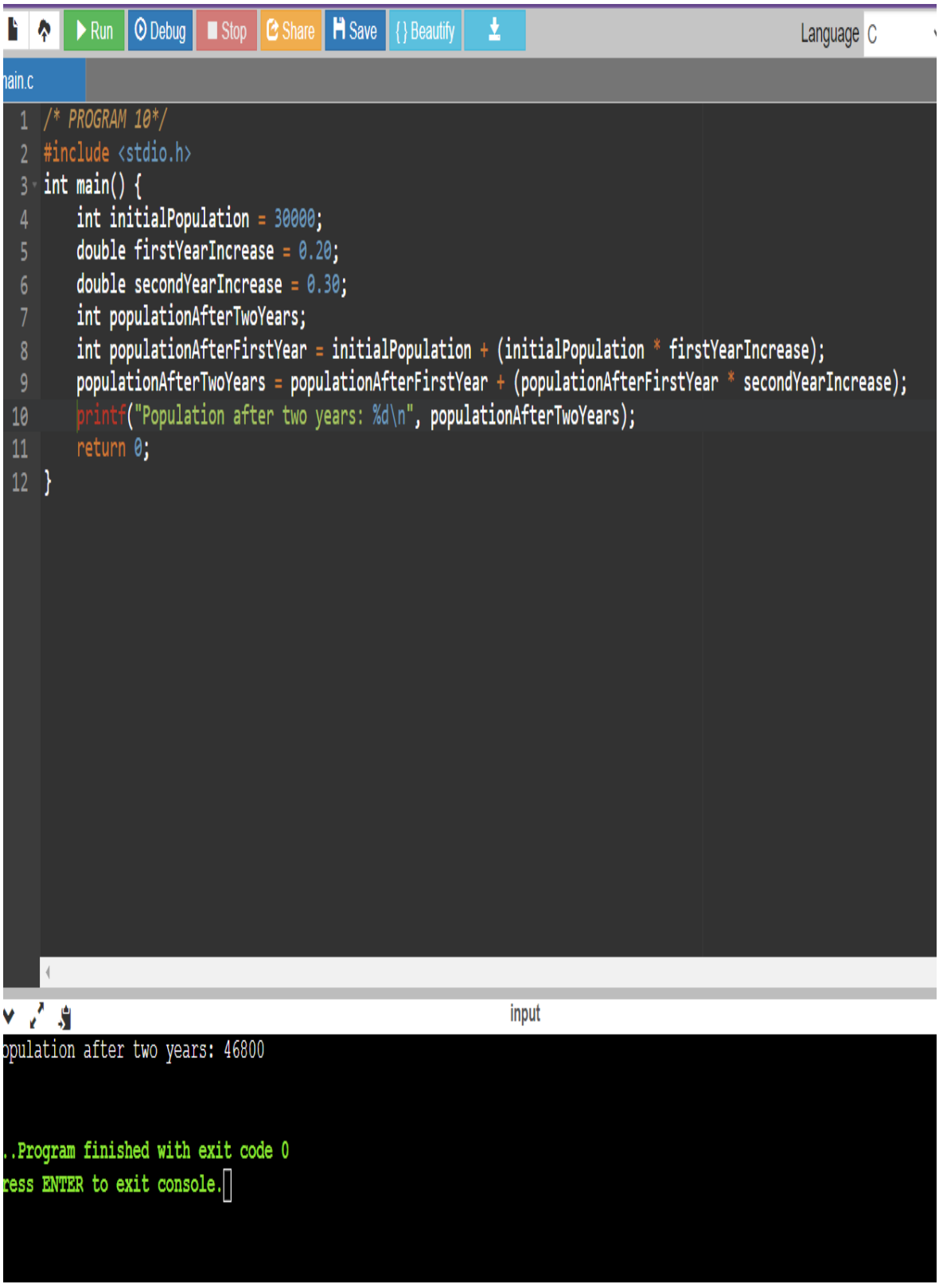
8.Write a program that prints the floating point value in exponential format correct to two decimal places.



Q9.Write a program to input and print your mobile number (i.e. of 10 digits).

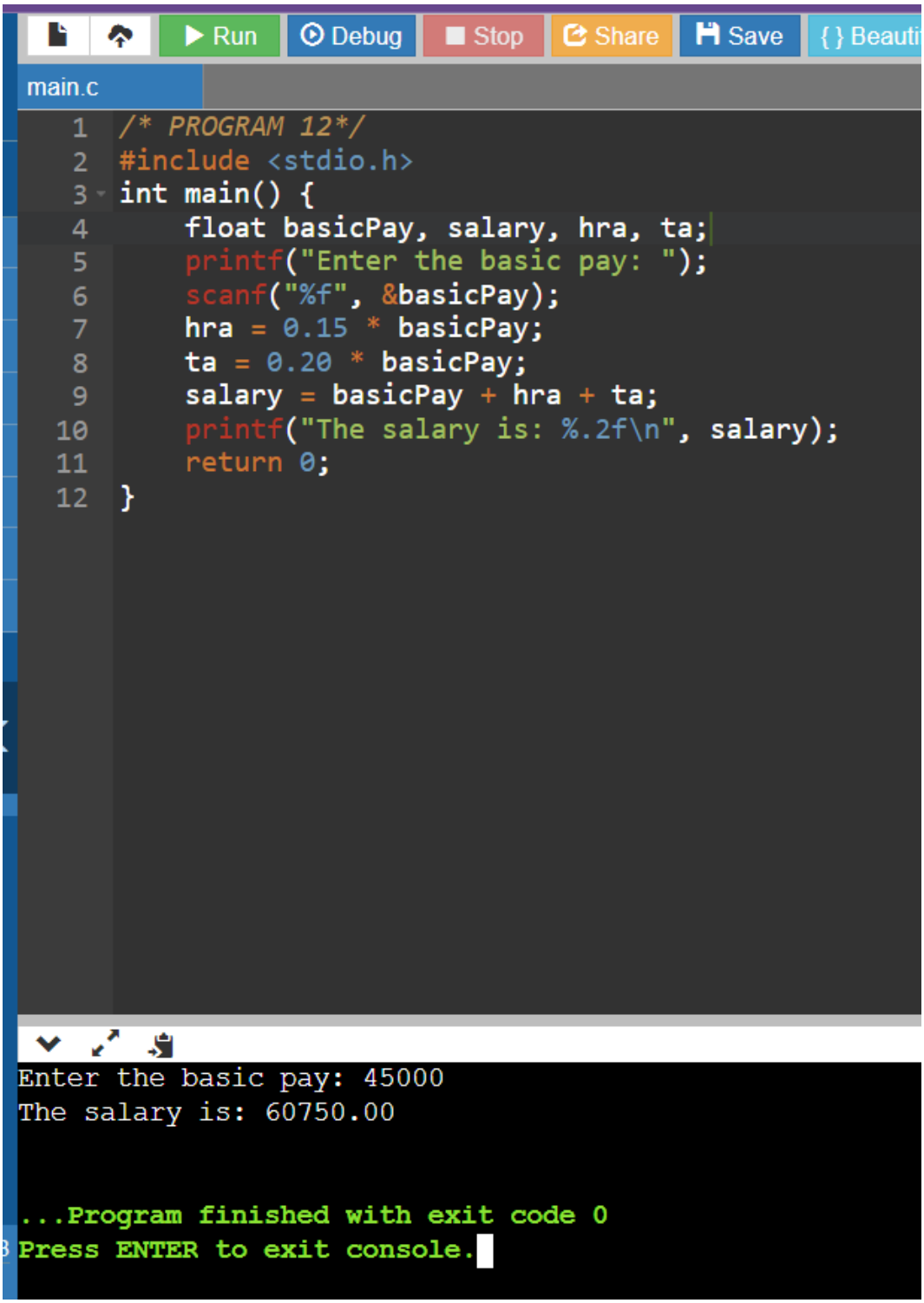


Q10.The population of a city is 30000. It increases by 20 % during first year and 30% during the second year. Write a program to find the population after two years? (Ans: 46800)



Q11. Write a program to find the ASCII value of a character.

Q12. Write a program to calculate salary of an employee, given his basic pay (entered by user), HRA=15% of the basic pay and TA=20% of the basic pay.



Q13. Write a program to find the slope of a line and angle of inclination that passes through two points P and Q with coordinates (xp, yp) and (xq, yq) respectively.

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main.c

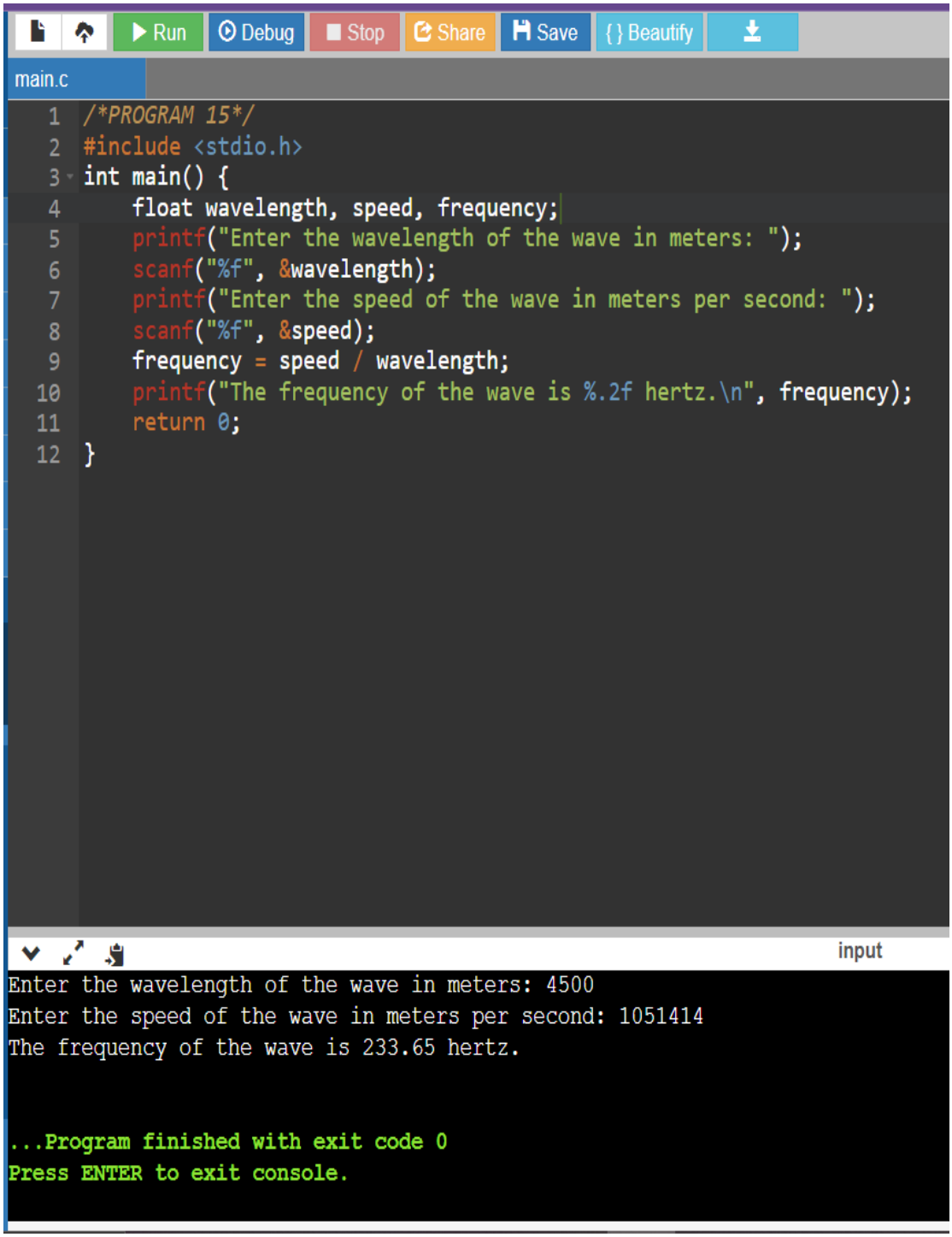
```c
/* PROGRAM 13*/
#include <stdio.h>
#include <math.h>
int main() {
    float xp, yp, xq, yq, slope, angle;

    printf("Enter the x-coordinate of point P: ");
    scanf("%f", &xp);
    printf("Enter the y-coordinate of point P: ");
    scanf("%f", &yp);
    printf("Enter the x-coordinate of point Q: ");
    scanf("%f", &xq);
    printf("Enter the y-coordinate of point Q: ");
    scanf("%f", &yq);
    slope = (yq - yp) / (xq - xp);
    angle = atan(slope) * 180 / M_PI;
    printf("The slope of the line is: %.2f\n", slope);
    printf("The angle of inclination is: %.2f degrees\n", angle);
    return 0;
}
```

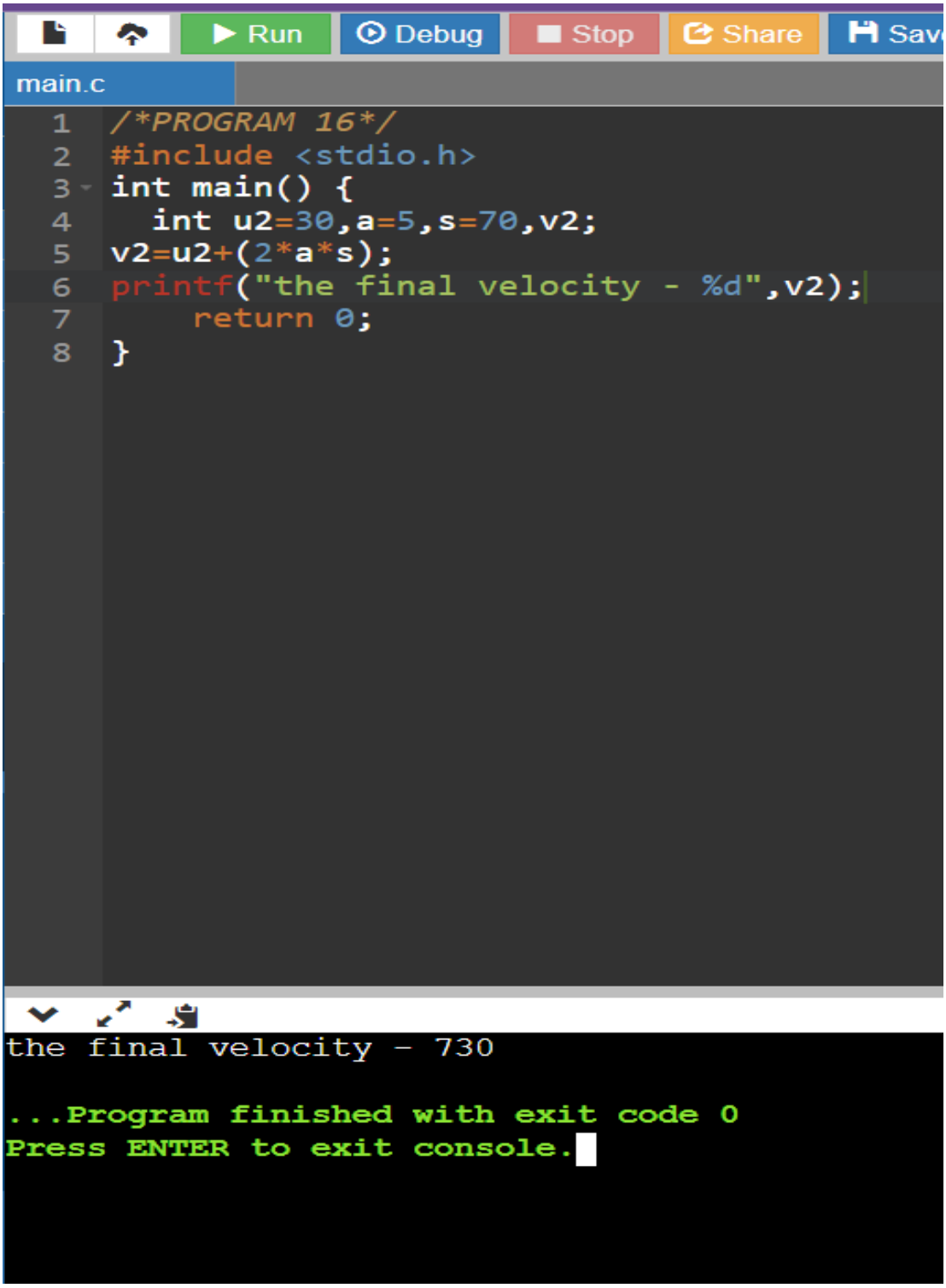
input

```
nter the x-coordinate of point P: 9
nter the y-coordinate of point P: 5
nter the x-coordinate of point Q: 5
nter the y-coordinate of point Q: 4
he slope of the line is: 0.25
he angle of inclination is: 14.04 degrees
```

Q 15. Write a program to calculate the frequency (f) of a given wave with wavelength (λ) and speed (c), where c=λ*f.



Q 16. A car travelling at 30 m/s accelerates steadily at 5 m/s2 for a distance of 70 m. What is the final velocity of the car? [Hint: v2 = u2 + 2as]



Q 17.A horse accelerates steadily from rest at 4 m/s2 for 3s. (a) What is its final velocity? (b) How far has it travelled? [Hint: (a) v = u + at (b) s = ut + ½at2]

main.c

```c
/*PROGRAM 17*/
#include <stdio.h>
int main() {
 int a=4,t=3,v,u=0;
float s;
v=u+(a*t);
s=(u*t)+(0.5*a*t*t);
printf(" the velocity is - %d   ",v);
printf("the distance traveled- %0.2f",s);
    return 0;
}
```

```
 the velocity is - 12   the distance traveled- 18.00

...Program finished with exit code 0
Press ENTER to exit console.
```

Q 18. Write a program to find the sum of your four last digit of your university roll number .

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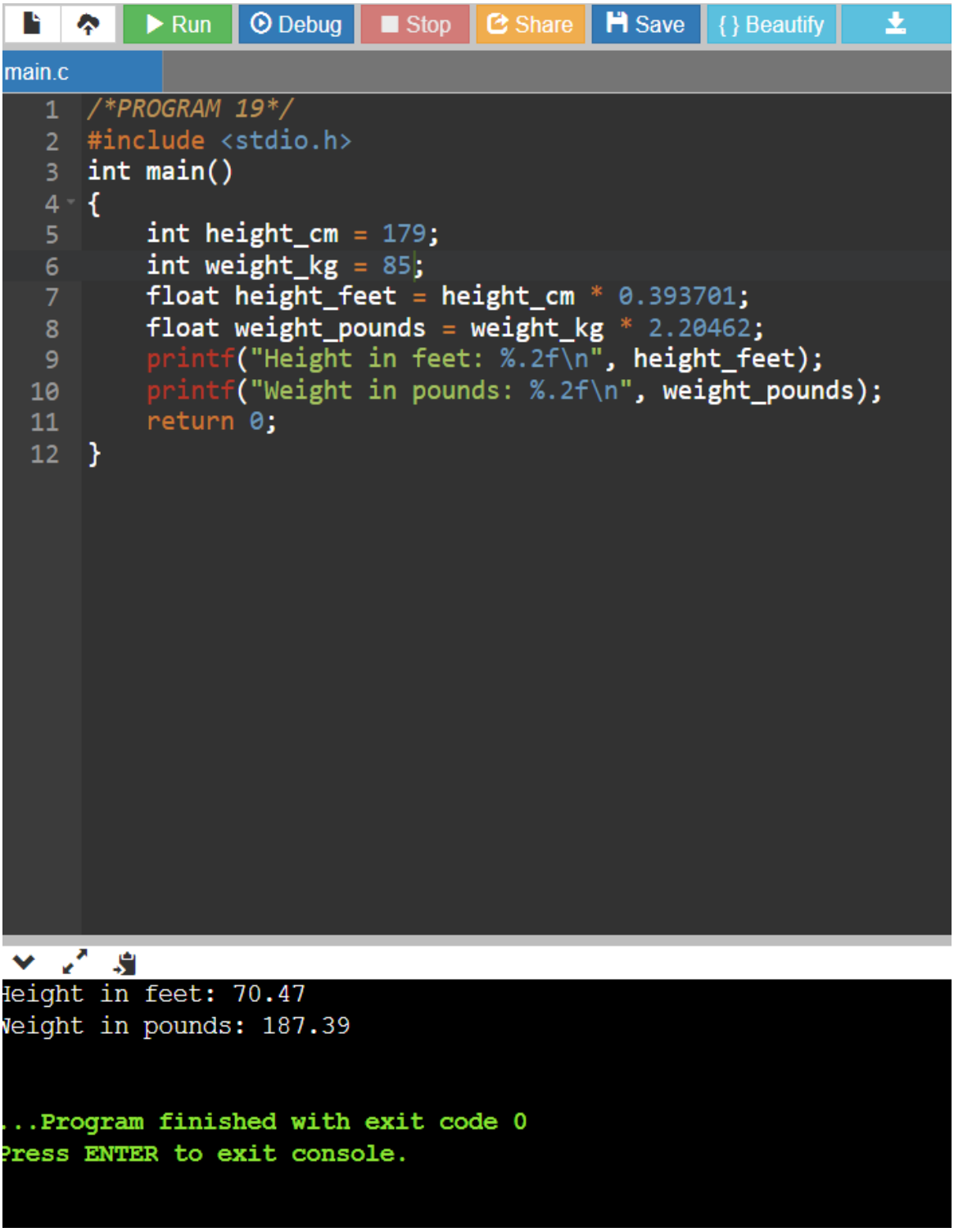
main.c

```c
/*PROGRAM 18*/
#include <stdio.h>
int main()
{
    int num, sum = 0, r;
    printf("Enter your university roll number: ");
    scanf("%d", &num);
    while (num > 0)
    {
        r = num % 10;
        sum = sum + r;
        num = num / 10;
    }
    printf("The sum of your last four digits is: %d", sum);
    return 0;
}
```

```
nter your university roll number: 140654
he sum of your last four digits is: 20

..Program finished with exit code 0
ress ENTER to exit console.
```

Q19. Write a program to initialize your height and weight in cm. and kgs respectively demonstrating compile time initialization and convert them in feets and pounds respectively. **Note :- 1 cm = 0.393701inch , 1 Kg = 2.20462**

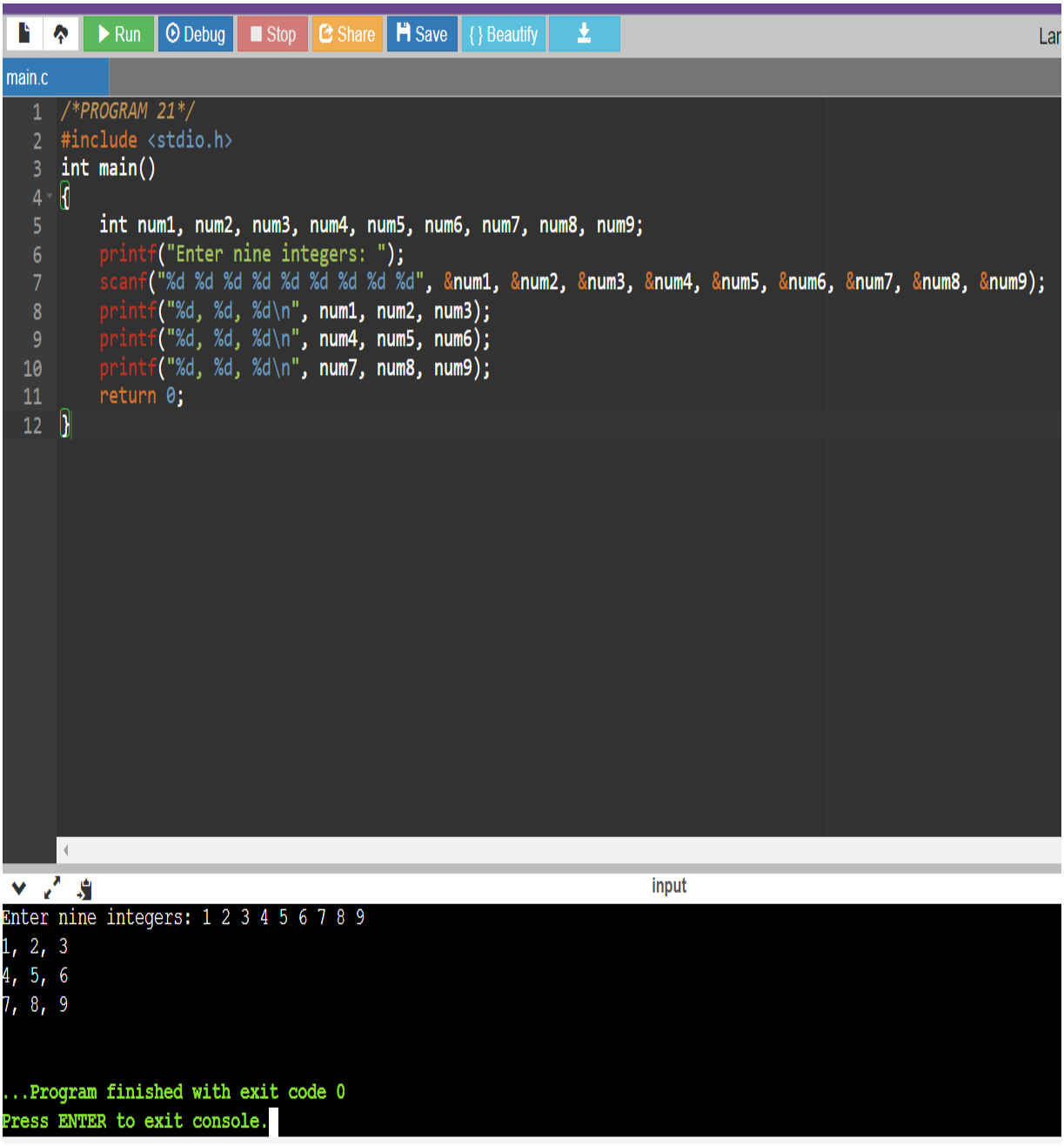


Q 20 . Code the variable declarations for each of following:

a) A character variable named option.
b) An integer variable sum initialized to 0
c) A floating point variable, product, initialized to 1

```
char option=' ';
int sum = 0;
float product = 1.0;
```

Q21. Write a program that reads nine integers. Display these numbers by printing three numbers in a line separated by commas.



Q22. What are header files and what are its uses in C programming?

ANSWER: Header files are library files that include main statements of the C language. They assist in accessing these commands to perform operations in C and create programs.

Q23. What will be the output of following program?

```
#include<stdio.h>
int main()
{   int num=070;
printf("%d\t%o\t%x",num,num,num);
}
```

Q 24. What will be the output of following program?

```
#include <stdio.h>
void main()
{
int x = printf("GLA UNIVERSITY");
printf("%d", x);
 }
```

Q25. What are library functions? List any four library functions.

Q26. What will be the output of following program?

```
#include <stdio.h>
void main()
{
  int x = printf("C is placement oriented Language") – printf("Hi");
  printf("%d %o %x", x,x,x);
}
```

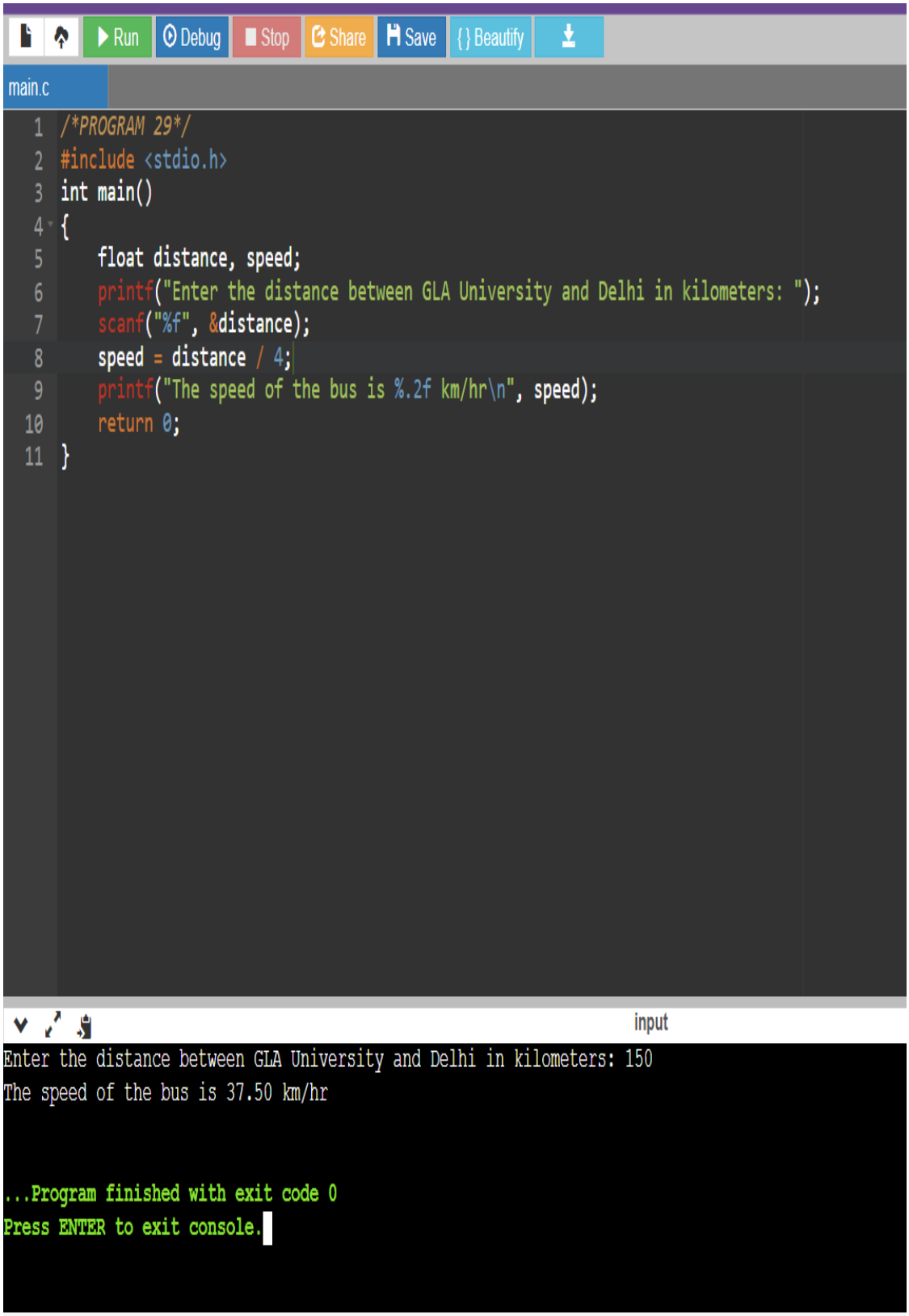
Q27. What is the meaning of following statement?

printf("%d",scanf("%d%d",&a,&b));

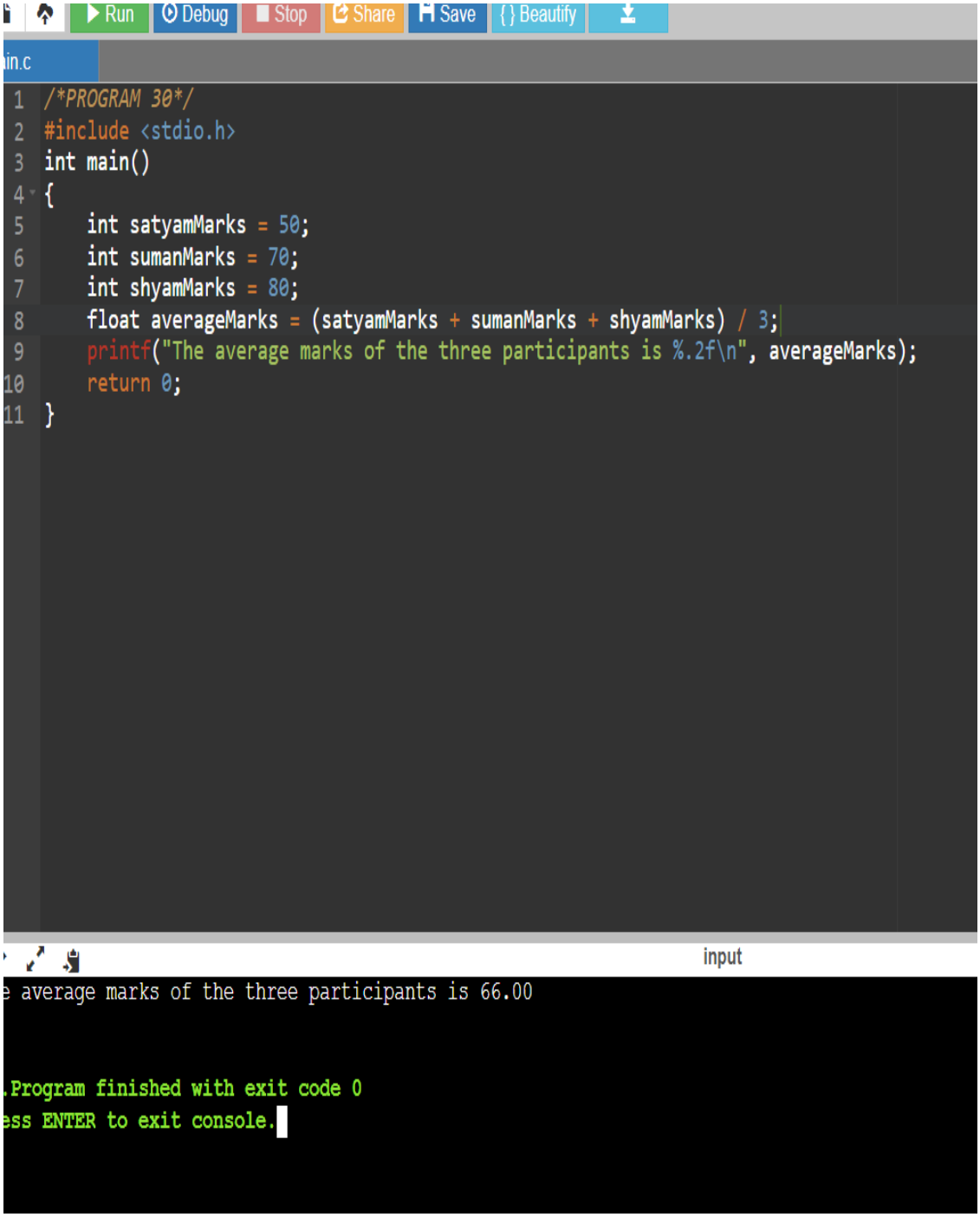
Q28. What will be the output of following program?

```
#include <stdio.h>
void main()
{
  printf(" \"C %% FOR %% PLACEMENT\"");
}
```

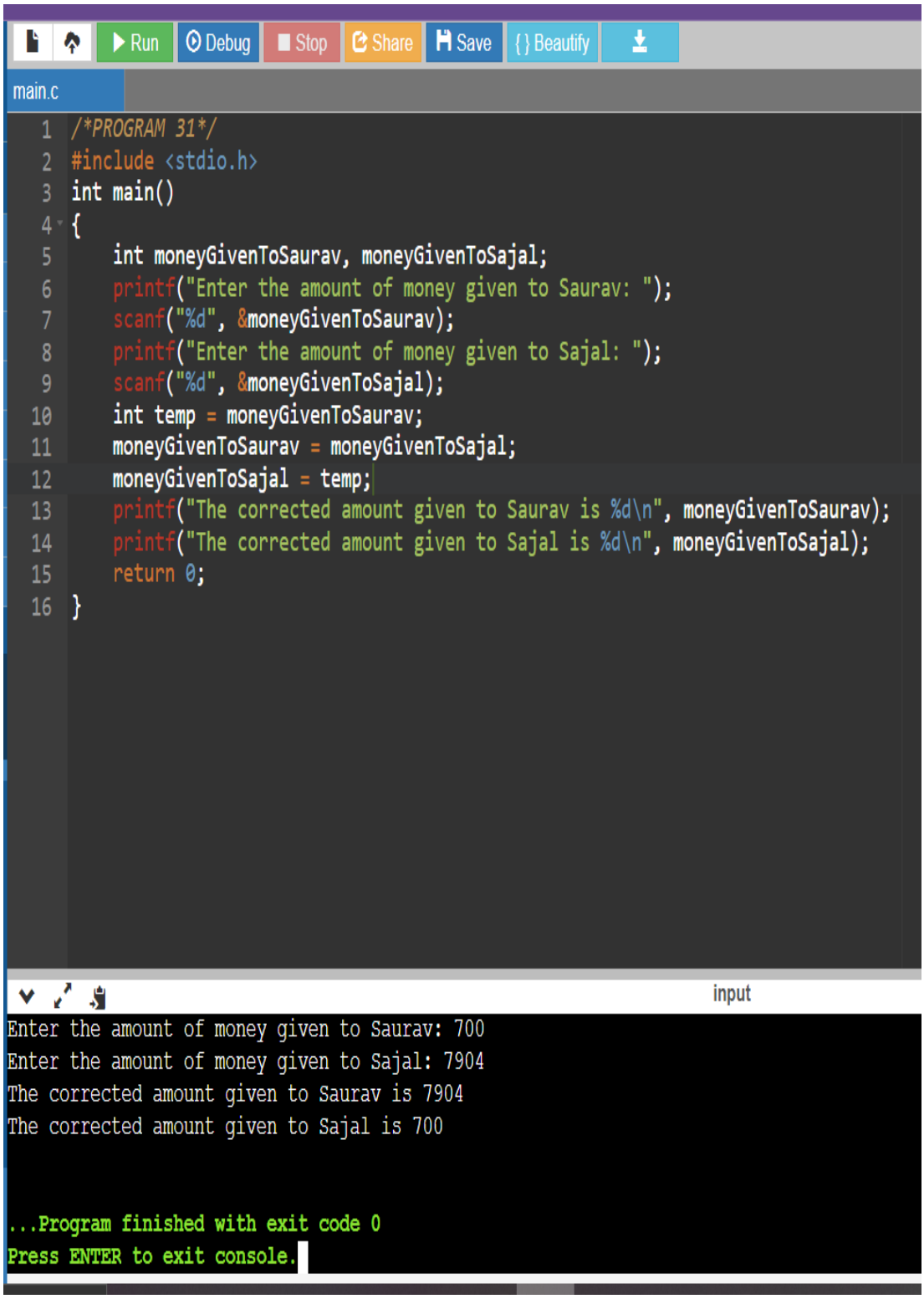
Q29. Suppose distance between GLA University and Delhi is m km (to be entered by user), by BUS you can reach Delhi in 4 hours. Develop a 'C' program to calculate speed



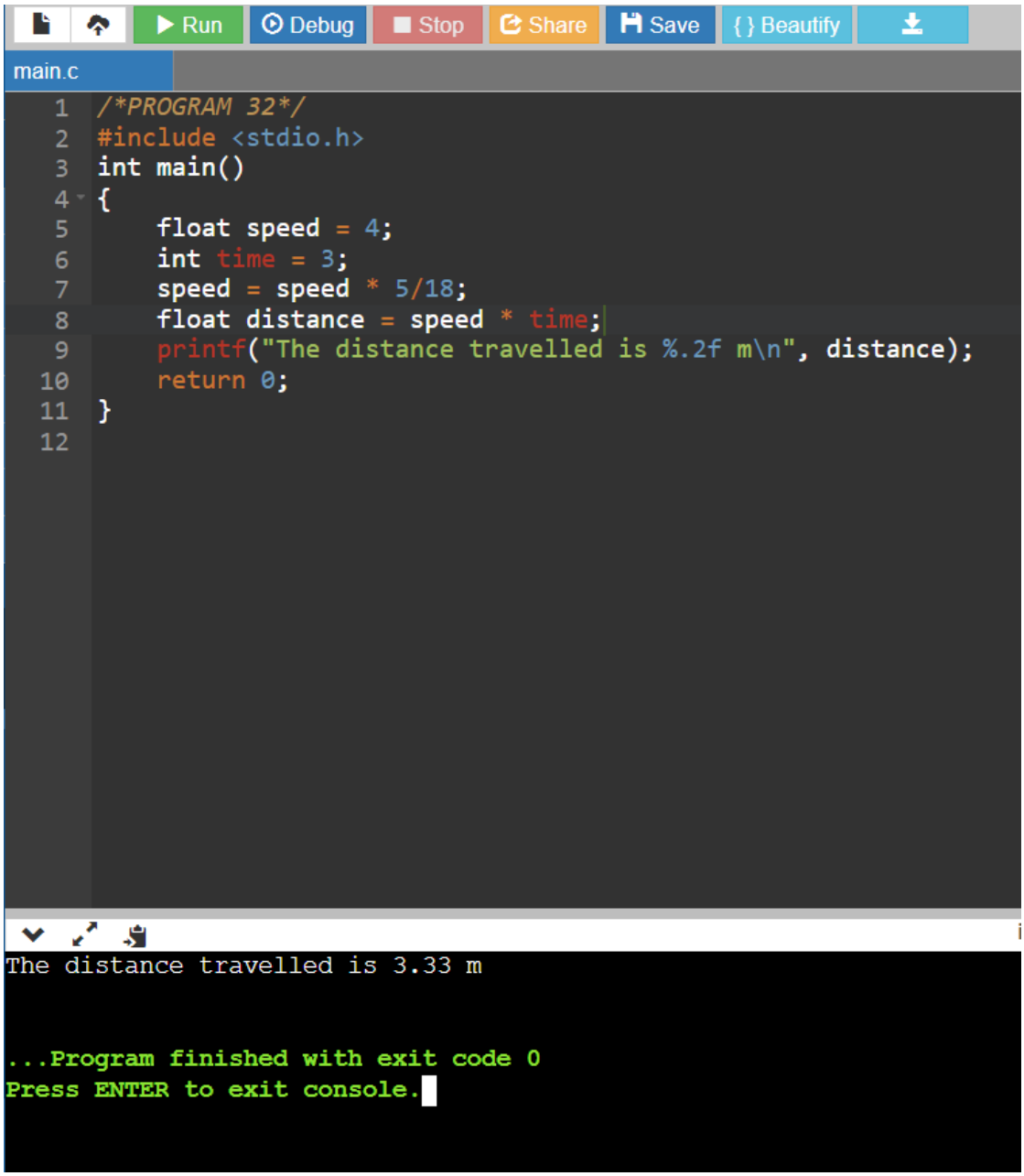
Q30. In an exam Satyam got 50 marks, Suman got 70 marks and Shyam got 80 marks, Write a ‘C’ program to find average marks of these three participants.



Q31. One day, Mohan called Saurav and Sajal and gave some money to them, later he realized that money that was given to Saurav should be given to Sajal and vice-versa. Develop a ‘C’ program to help Mohan so that he can rectify his mistake.



Q32. One day when I was going for a lunch, suddenly rain started, I was very hungry so started running with speed of 4km/h and it took 3 min to reach mess. Help me to develop a 'C' program to calculate distance travelled by me.



Q33. Can two or more escape sequences such as \n and \t be combined in a single line of program code?

YES

Q34. What are comments and how do you insert it in a C program?

Comments are statements used to specify what type of work are you doing in the given line it is of two types

A- Single line comment

B- Double line comment

Q35. What is wrong in this statement? scanf("%d",number);

'&' sign is not used before number but in syntax of scanf it is important

Q36. What will be the output?

```
#include <stdio.h>
    int main()
{
   if (sizeof(int) > -1)
      printf("Yes");
   else
      printf("No");
   return 0;
}
```

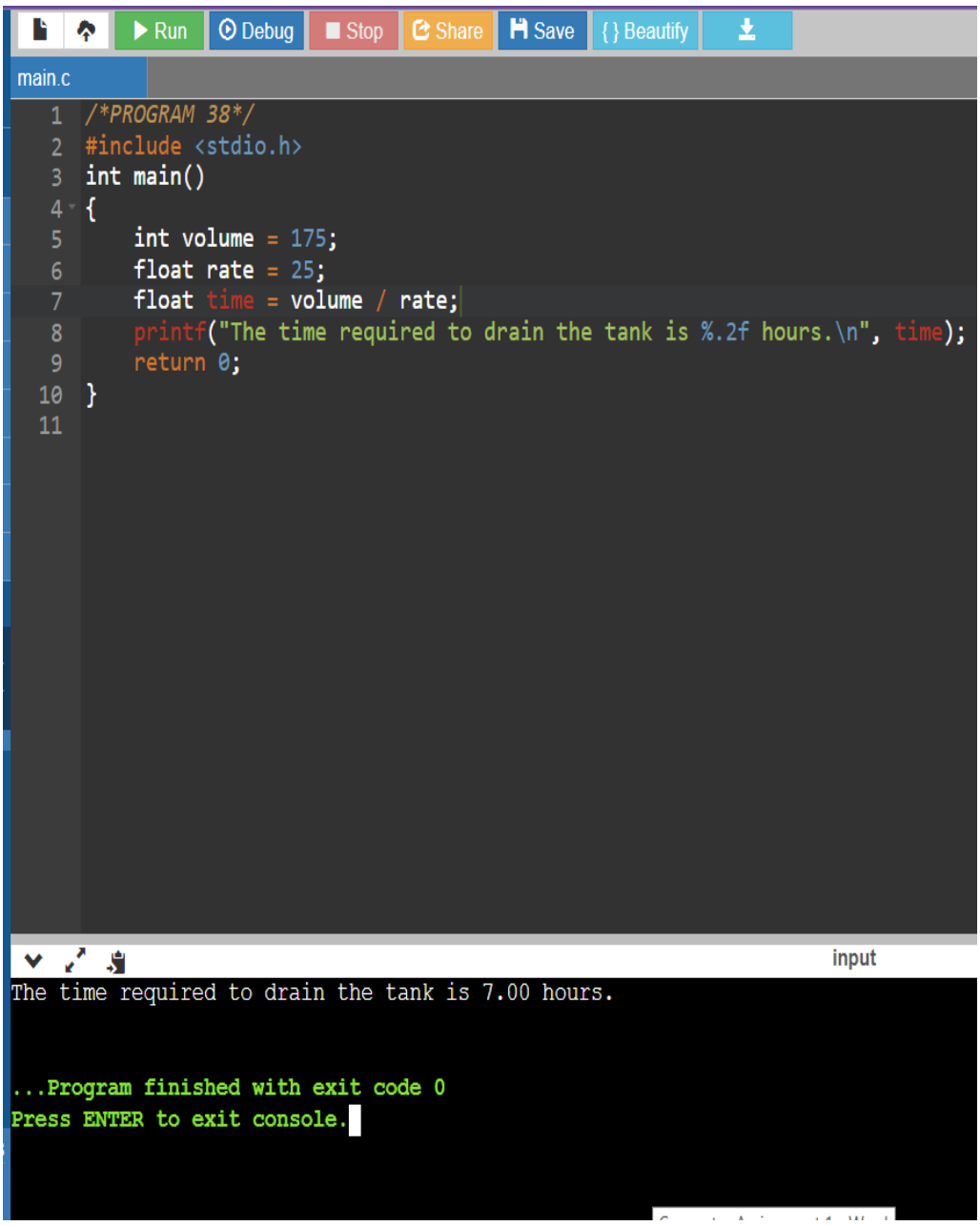
Q37. Point out which of the following variable names are invalid:
gross-salary INTEREST , salary of emp , avg. , thereisbookinmysoup

gross-salary

salary of emp

avg.

Q38. Tom works at an aquarium shop on Saturdays. One Saturday, when Tom gets to work, he is asked to clean a 175-gallon reef tank. His first job is to drain the tank. He puts a hose into the tank and starts a siphon. Tom wonders if the tank will finish draining before he leaves work. He measures the amount of water that is draining out and finds that 12.5 gallons drain out in 30 minutes. So, he figures that the rate is 25 gallons per hour. Develop a 'C' program to help Tom to calculate time required to completely clean tank.



Q40.Which of the following is used to convert the high level language in machine language in a single go?

a. Compiler b.Interpreter

c. Linker d.Assembler

Q 41. What is the format specifier for an Octal Number?

a.%0 b.%d

c. %o d. %e

Q 42. Which format specifier is used to print the exponent value upto 2 decimal places.

a. %e b.%.2f c. %f d.%.2e

Q 43. Which of the following is not a basic data type?

a. char

b. array

c. float

d. int

Q 44. What is the output of following code?

```
#include<stdio.h>
void main()
{
  int x=0;
  x= printf("\"hello\b\"");
  printf("%d",x);
}
```

a. hello7 b. "hello"7 c. "hell"8 d. hell8

Q 45. What is the output of following code?

```
#include<stdio.h>
void main()
{
  int b,c=5 ;
  int("%d , %d", b,c);
}
```

a. 5, 5 b. 5, 5.000000

c. Garbage, 5.000000 d. Garbage, 5

Q46. Which of the following is an identifier?

a. &fact b. Basic_pay c. enum d. 1sum

Q 47. What is the output of the following program?

```
#include<stdio.h>
void main()
{
   char x, a='c';
   x=printf("%c",a);
   printf("%d",x);
}
```

a. c1 b. cgarbage
c. 1 c. c

Q48. Perform the following conversion from Decimal to other number as directed-

a) $(365.55)_{10}$ = $(101101101.10001100110011001101)_2$

b) $(453.65)_{10}$ = $(705.51463146314631463146)_8$

c) $(5164.12)_{10}$ = $(142C.1EB851EB851EB851EB85)_{16}$

d) $(23.65)_{10}$ = $(43.31111111111111111111)_5$

e) $(772)_{10}$ = $(2152)_7$

Q49. Covert the following numbers to decimal number system-

a) $(325.54)_6$ = $(125.94444444444444444444)_{10}$

b) $(1001010110101.1110101)_2$ = $(4789.90625)_{10}$

c) $(742.72)_8$ = $(482.9062)_{10}$

d) $(AC94.C5)_{16}$ = $(44180.76953125)_{10}$

Q50. Perform the following conversion from Hexadecimal to other number as directed-

$(DB56.CD4)_{16}$ = $(1101101101010110.110011010)_{2,}$ $(?)_8$, $(?)_4$

Q51. Perform the following conversion from octal to other number as directed-

$(473.42)_8$ = $(100111011.10001)_2$, $(315.53125)_{10,}$ $(13B)_{16}$, $(2230.231200342312 00342312)_5$

Q52. Find the value of A?

a) $(23)_{10}$ = $(17)_A$ A=16

b) $(21)_{16}$ = $(41_)_A$ A=8

c) $(32)_8$ = $(101)_A$ A=

Q53: What will be the output of following program? Assume integer is of 2 bytes

```
void main(){
int  a=32770;
printf("%d",a);
}
```

Q54:
```
#include <stdio.h>
 int main()
{
 float c = 5.0;
 printf ("Temperature in Fahrenheit is %.2f", (9/5)*c + 32);
 return 0;
```

}

Temperature in Fahrenheit is 37.00