

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.

```
1
2 #include <stdio.h>
3
4 int main()
5 {
6     int r,p,st,tp;
7     printf("enter rate and price of product");
8     scanf("%d %d",&r,&p);
9     st=(p*r)/100;
10    tp=st+p;
11    printf(" the final price-%d",tp);
12
13    return 0;
14 }
15
```

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

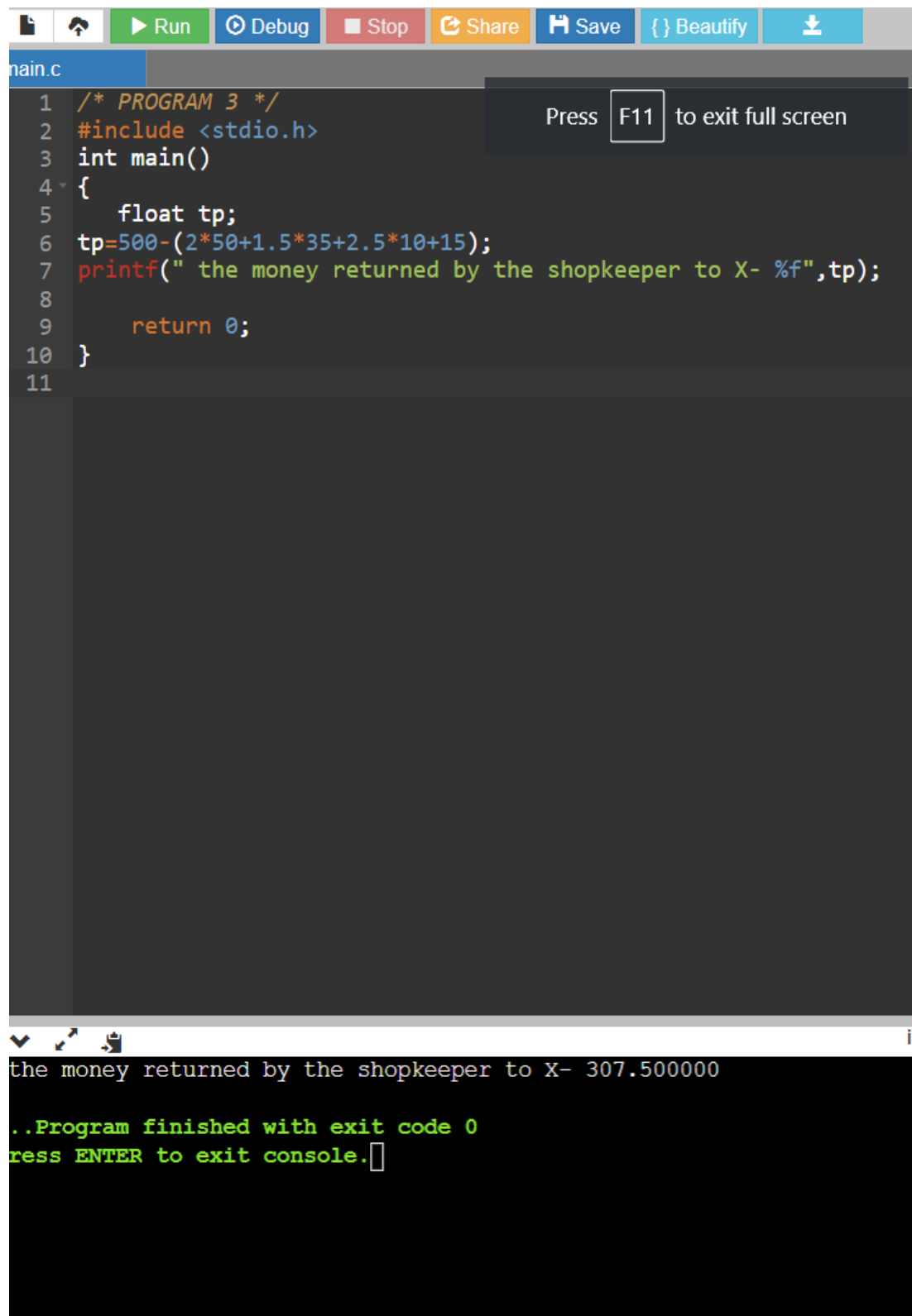
...Program finished with exit code 0
Press ENTER to exit console.

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.

```
1  /* PROGRAM 2 */
2  #include <stdio.h>
3  int main()
4  {
5      int wh,nh,e,ts;
6      printf("enter the wages per hour and no. of hours ");
7      scanf("%d %d",&wh,&nh);
8      if(nh>30)
9      {
10         e=nh-30;
11         ts=(30*wh)+(e*2*wh);
12     }
13     else
14     {
15         ts=nh*wh;
16     }
17     printf(" the total salary is-%d",ts);
18
19     return 0;
20 }
21
22
```

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.



```
1  /* PROGRAM 3 */
2  #include <stdio.h>
3  int main()
4  {
5      float tp;
6      tp=500-(2*50+1.5*35+2.5*10+15);
7      printf(" the money returned by the shopkeeper to X- %f",tp);
8
9      return 0;
10 }
11
```

the money returned by the shopkeeper to X- 307.500000

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

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

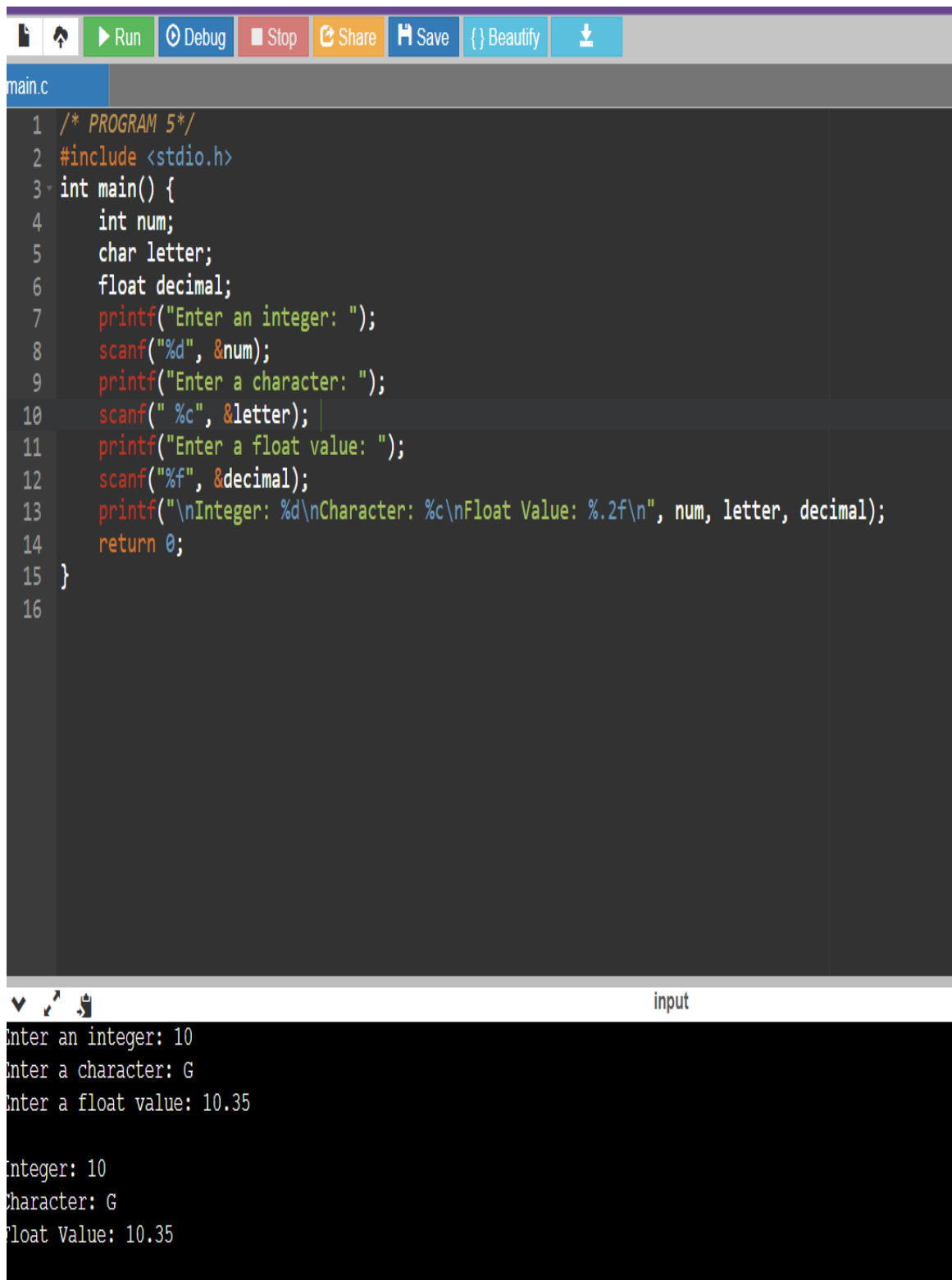
```
main.c
1  /*PROGRAM 4*/
2  #include <stdio.h>
3  int main()
4  {
5      int b=0;
6      char name=' ';
7      long dob;
8      long mobileNumber;
9      printf("Enter your date of birth in DDMMYYYY format : ");
10     scanf("%ld",&dob);
11     printf("Enter your mobile number: ");
12     scanf("%ld",&mobileNumber);
13     printf("Enter your name and write a '*' at the end of name : ");
14     for(int a=0;a<=50;a++)
15     {
16         scanf("%c",&name);
17         while(a==1)
18         {
19             printf("\nName -");
20             a++;
21         }
22
23         if(name=='*')
24             break;
25         else
26         {
27             printf("%c",name);
28         }
29     }
30     printf("\nDate of Birth: %ld\n", dob);
31     printf("Mobile Number: %ld\n", mobileNumber);
32     return 0;
33 }
34
35
```

```
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.



The image shows a code editor window with a toolbar at the top containing icons for Run, Debug, Stop, Share, Save, Beautify, and a download icon. The file name 'main.c' is visible in the top left. The code is a C program that reads an integer, a character, and a float value from the keyboard and displays them on separate lines. The code is as follows:

```
1  /* PROGRAM 5*/
2  #include <stdio.h>
3  int main() {
4      int num;
5      char letter;
6      float decimal;
7      printf("Enter an integer: ");
8      scanf("%d", &num);
9      printf("Enter a character: ");
10     scanf(" %c", &letter);
11     printf("Enter a float value: ");
12     scanf("%f", &decimal);
13     printf("\nInteger: %d\nCharacter: %c\nFloat Value: %.2f\n", num, letter, decimal);
14     return 0;
15 }
16
```

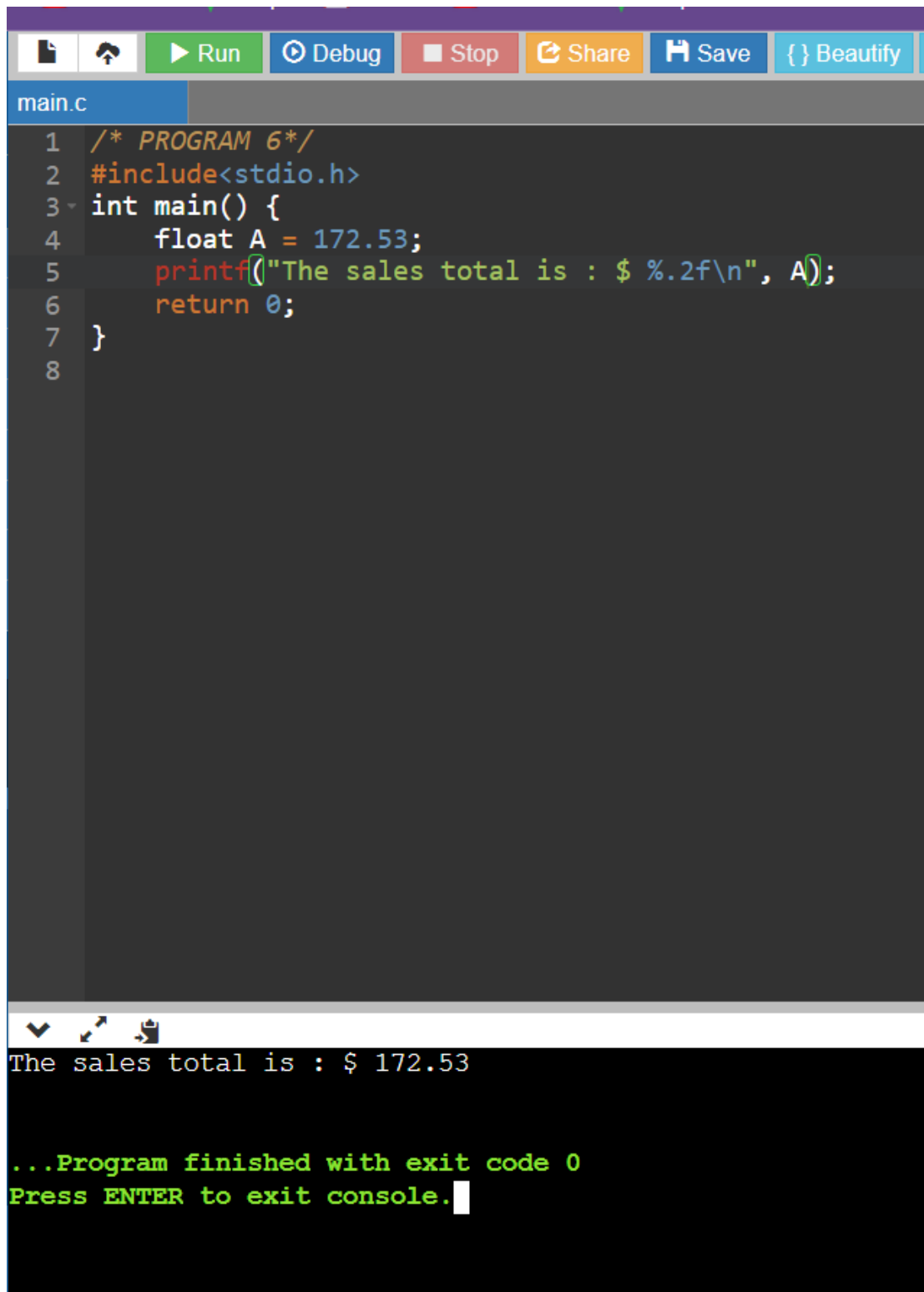
Below the code editor, there is a terminal window titled 'input' showing the execution of the program. The user input and the program output are as follows:

```
Enter an integer: 10
Enter a character: G
Enter a float value: 10.35

Integer: 10
Character: G
Float Value: 10.35
```

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



The image shows a screenshot of a C program editor and its output. The editor window, titled 'main.c', contains the following code:

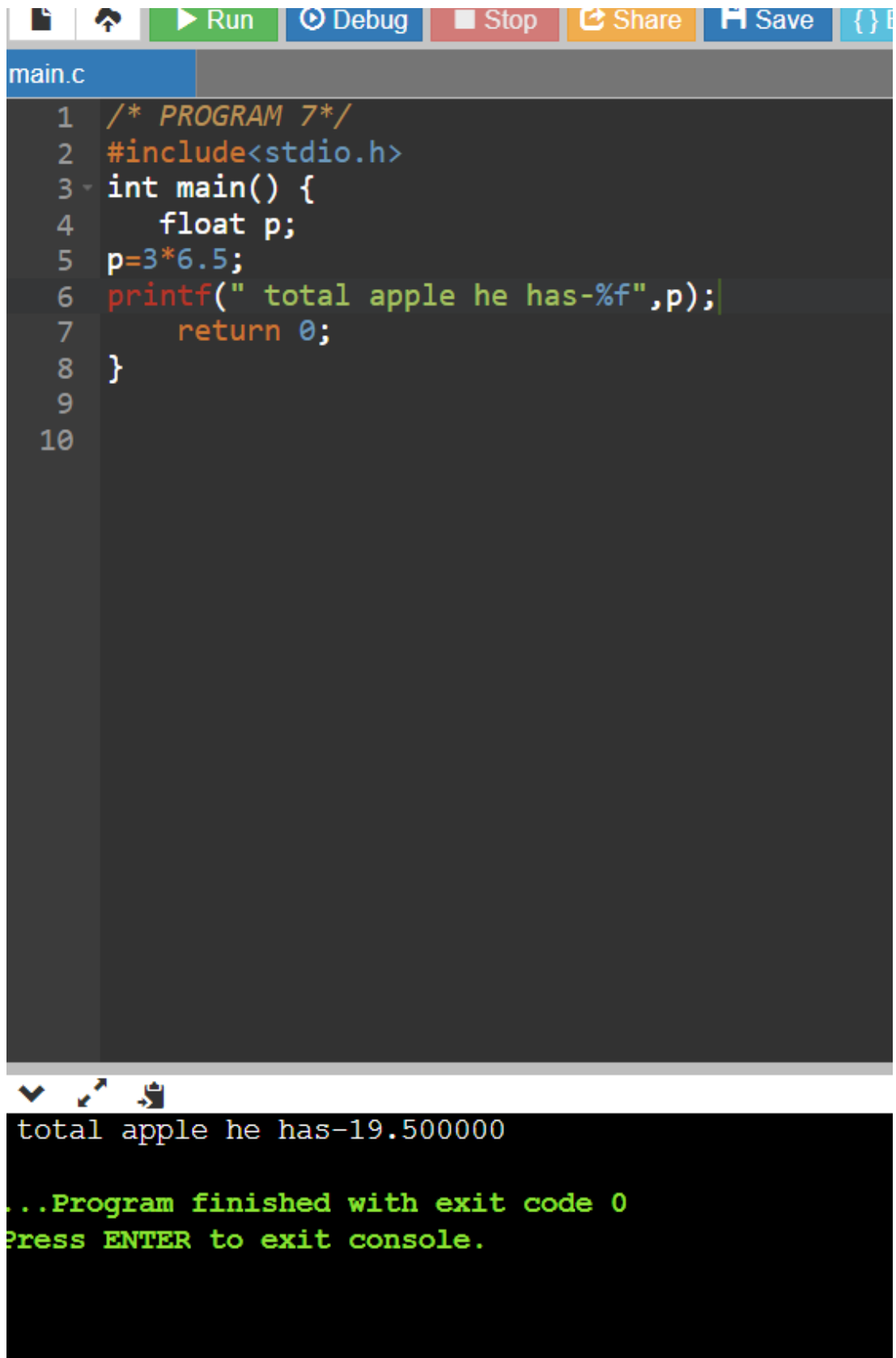
```
1  /* PROGRAM 6 */
2  #include<stdio.h>
3  int main() {
4      float A = 172.53;
5      printf("The sales total is : $ %.2f\n", A);
6      return 0;
7  }
8
```

Below the editor, the output of the program is displayed in a console window. It shows the text 'The sales total is : \$ 172.53' followed by a message indicating the program finished with exit code 0 and a prompt to press ENTER to exit the console.

```
The sales total is : $ 172.53

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

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.



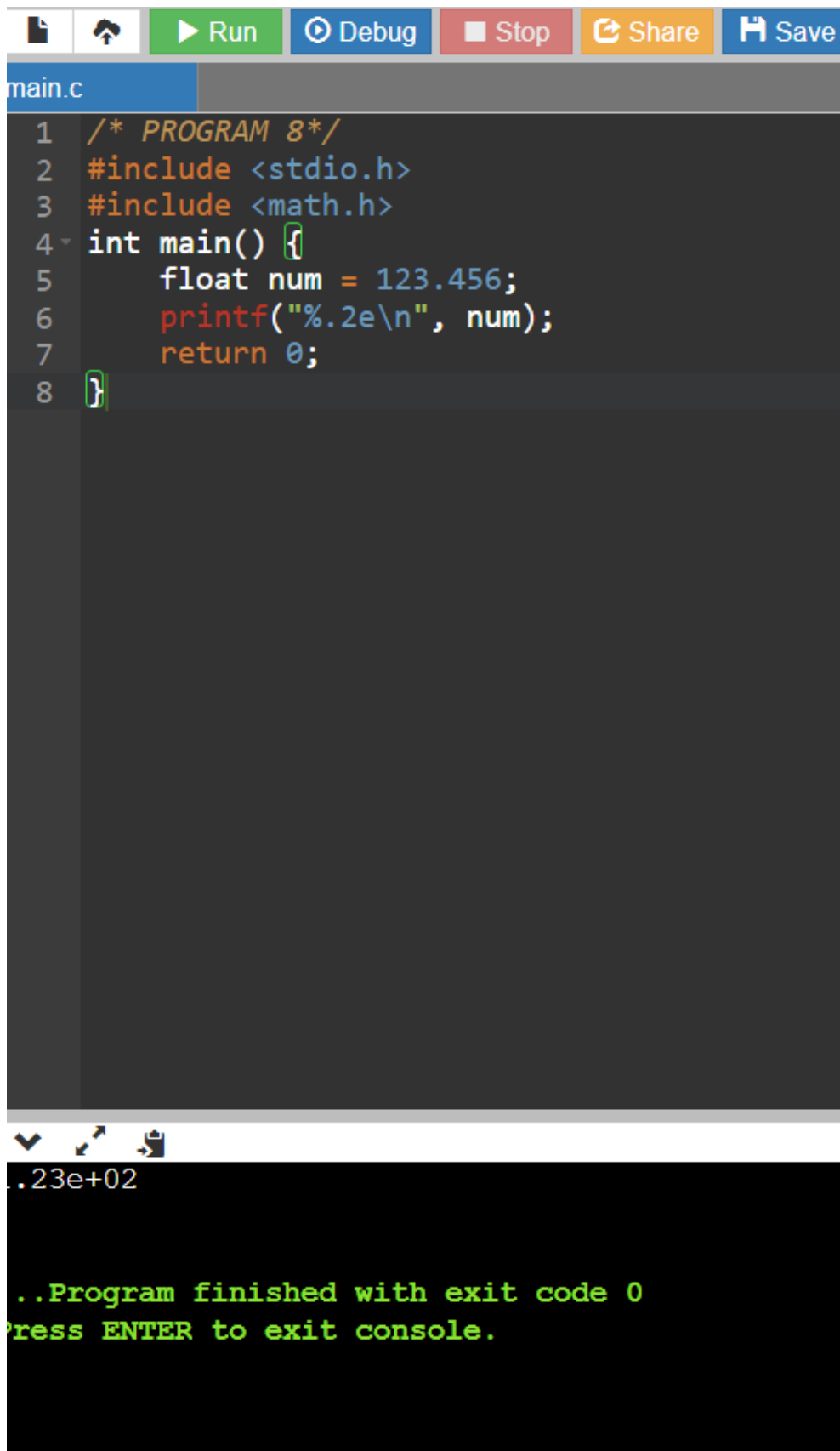
The image shows a code editor window with a toolbar at the top containing icons for file operations and buttons for 'Run', 'Debug', 'Stop', 'Share', and 'Save'. The editor displays a C program in a file named 'main.c'. The code calculates the total number of apples by multiplying 3 by 6.5. Below the code editor, a console window shows the output of the program.

```
1  /* PROGRAM 7*/  
2  #include<stdio.h>  
3  int main() {  
4      float p;  
5      p=3*6.5;  
6      printf(" total apple he has-%f",p);  
7      return 0;  
8  }  
9  
10
```

total apple he has-19.500000

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

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



The image shows a code editor window with a toolbar at the top containing icons for file operations and buttons for 'Run', 'Debug', 'Stop', 'Share', and 'Save'. The editor is titled 'main.c' and contains the following C code:

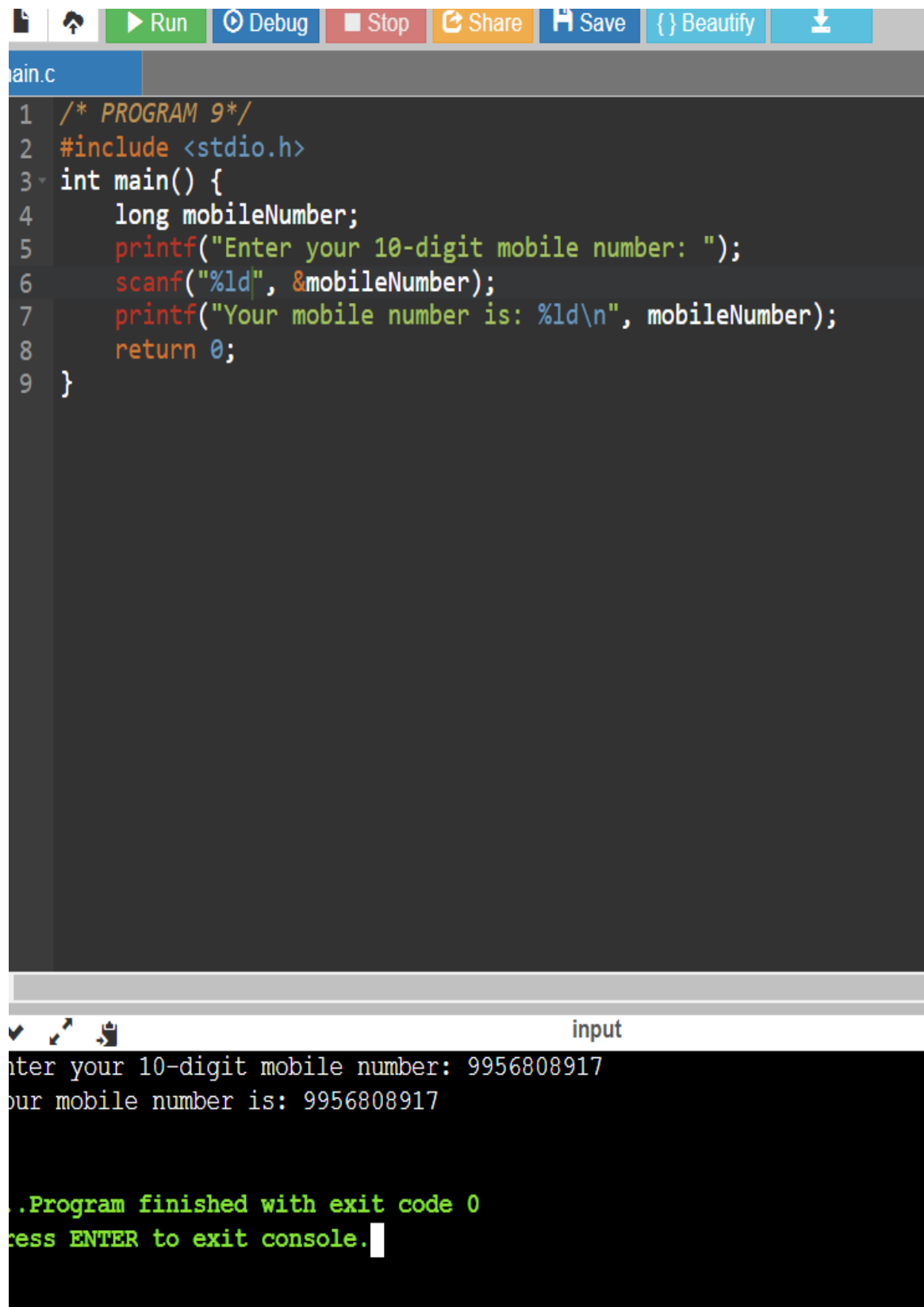
```
1  /* PROGRAM 8 */
2  #include <stdio.h>
3  #include <math.h>
4  int main() {
5      float num = 123.456;
6      printf("%.2e\n", num);
7      return 0;
8  }
```

Below the editor is a terminal window showing the output of the program. The first line is the output of the printf statement, and the subsequent lines are the program's completion message.

```
1.23e+02

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


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



The image shows a code editor window with a toolbar at the top containing icons for Run, Debug, Stop, Share, Save, Beautify, and a download icon. The file name 'main.c' is visible in the tab. The code is as follows:

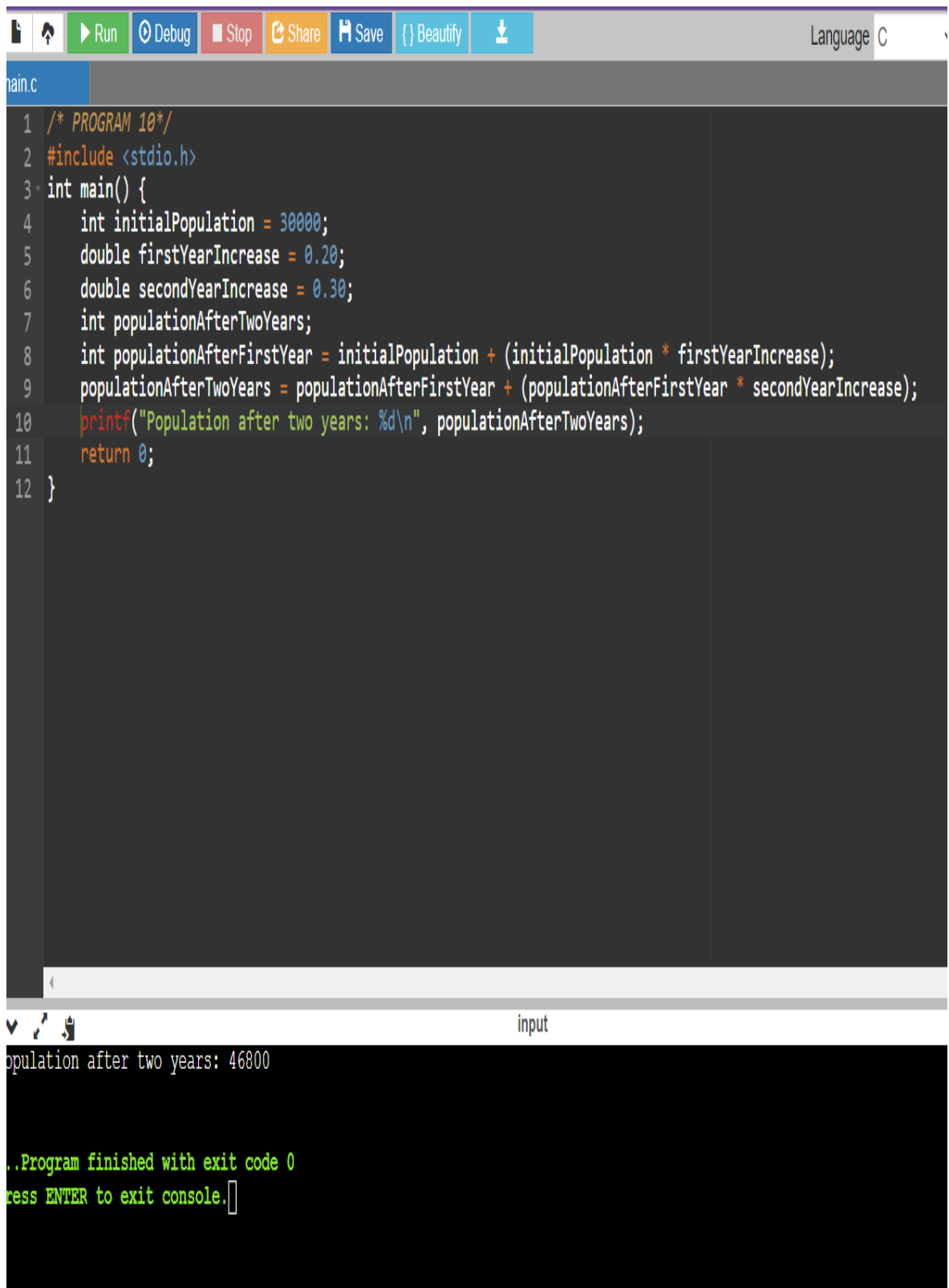
```
1  /* PROGRAM 9 */
2  #include <stdio.h>
3  int main() {
4      long mobileNumber;
5      printf("Enter your 10-digit mobile number: ");
6      scanf("%ld", &mobileNumber);
7      printf("Your mobile number is: %ld\n", mobileNumber);
8      return 0;
9  }
```

Below the code editor is a terminal window titled 'input'. It shows the program's execution with the following output:

```
Enter your 10-digit mobile number: 9956808917
Your mobile number is: 9956808917

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

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)



The image shows a screenshot of a C programming IDE. The top toolbar includes icons for Run, Debug, Stop, Share, Save, Beautify, and a download icon. The language is set to C. The file name is 'main.c'. The code is as follows:


```
1  /* PROGRAM 10 */
2  #include <stdio.h>
3  int main() {
4      int initialPopulation = 30000;
5      double firstYearIncrease = 0.20;
6      double secondYearIncrease = 0.30;
7      int populationAfterTwoYears;
8      int populationAfterFirstYear = initialPopulation + (initialPopulation * firstYearIncrease);
9      populationAfterTwoYears = populationAfterFirstYear + (populationAfterFirstYear * secondYearIncrease);
10     printf("Population after two years: %d\n", populationAfterTwoYears);
11     return 0;
12 }
```

The output window shows the result of the program execution:

```
Population after two years: 46800

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

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



The image shows a code editor window with a toolbar at the top containing icons for file operations, a 'Run' button, a 'Debug' button, a 'Stop' button, a 'Share' button, a 'Save' button, and a 'Beautify' button. The editor shows a C program in a file named 'main.c'. The program is as follows:

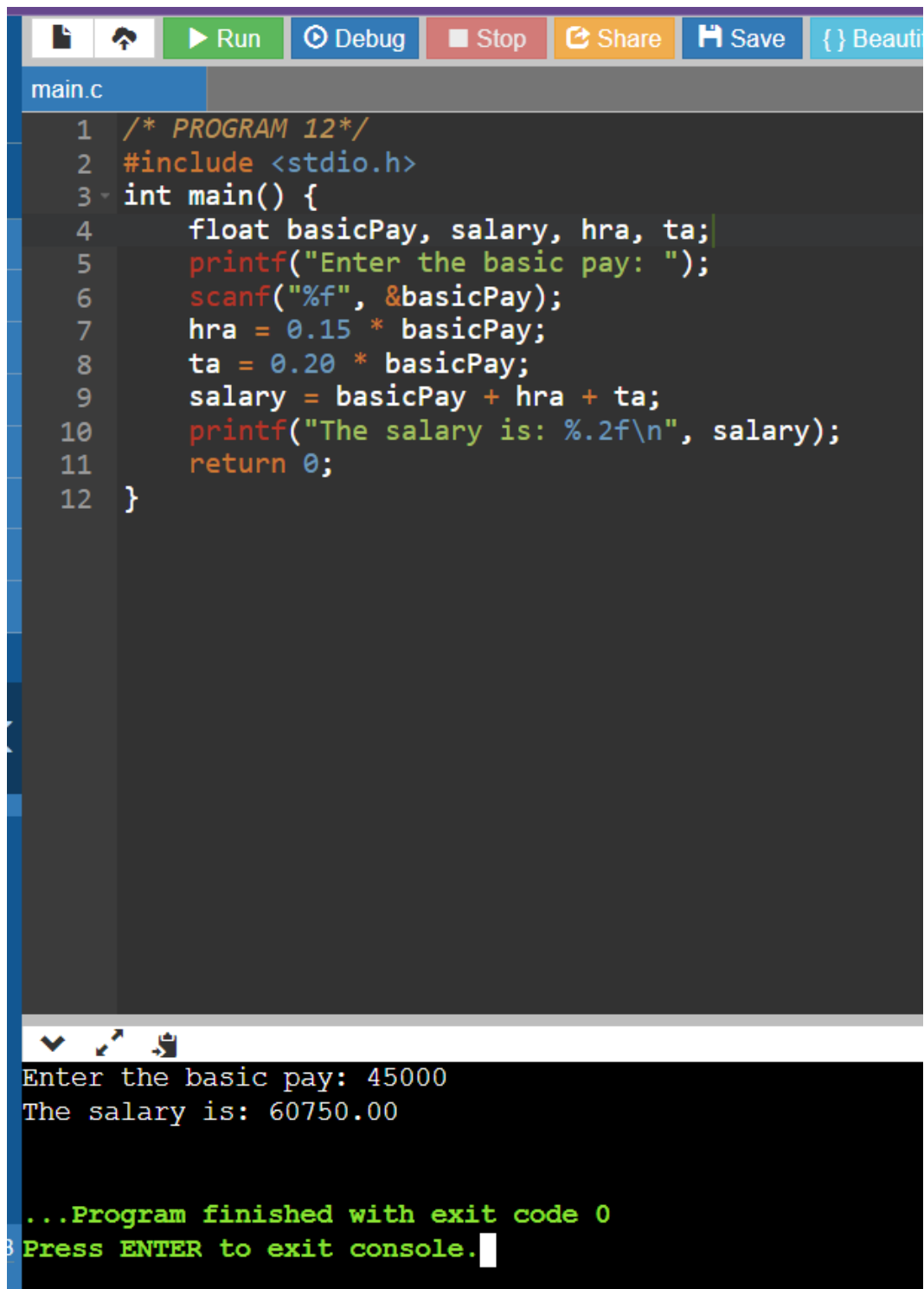
```
1  /* PROGRAM 11*/
2  #include <stdio.h>
3  int main() {
4      char ch;
5      printf("Enter a character: ");
6      scanf(" %c", &ch);
7      printf("The ASCII value of %c is %d\n", ch, ch);
8      return 0;
9  }
```

Below the editor is a terminal window showing the execution of the program. It prompts for a character, receives 'K', and outputs the ASCII value 75. It then displays the message '..Program finished with exit code 0' and 'Press ENTER to exit console.' with a cursor.

```
Enter a character: K
The ASCII value of K is 75

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

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.



The image shows a code editor window with a toolbar at the top containing icons for file operations, a 'Run' button, a 'Debug' button, a 'Stop' button, a 'Share' button, a 'Save' button, and a 'Beautify' button. The editor displays a C program named 'main.c' with the following code:

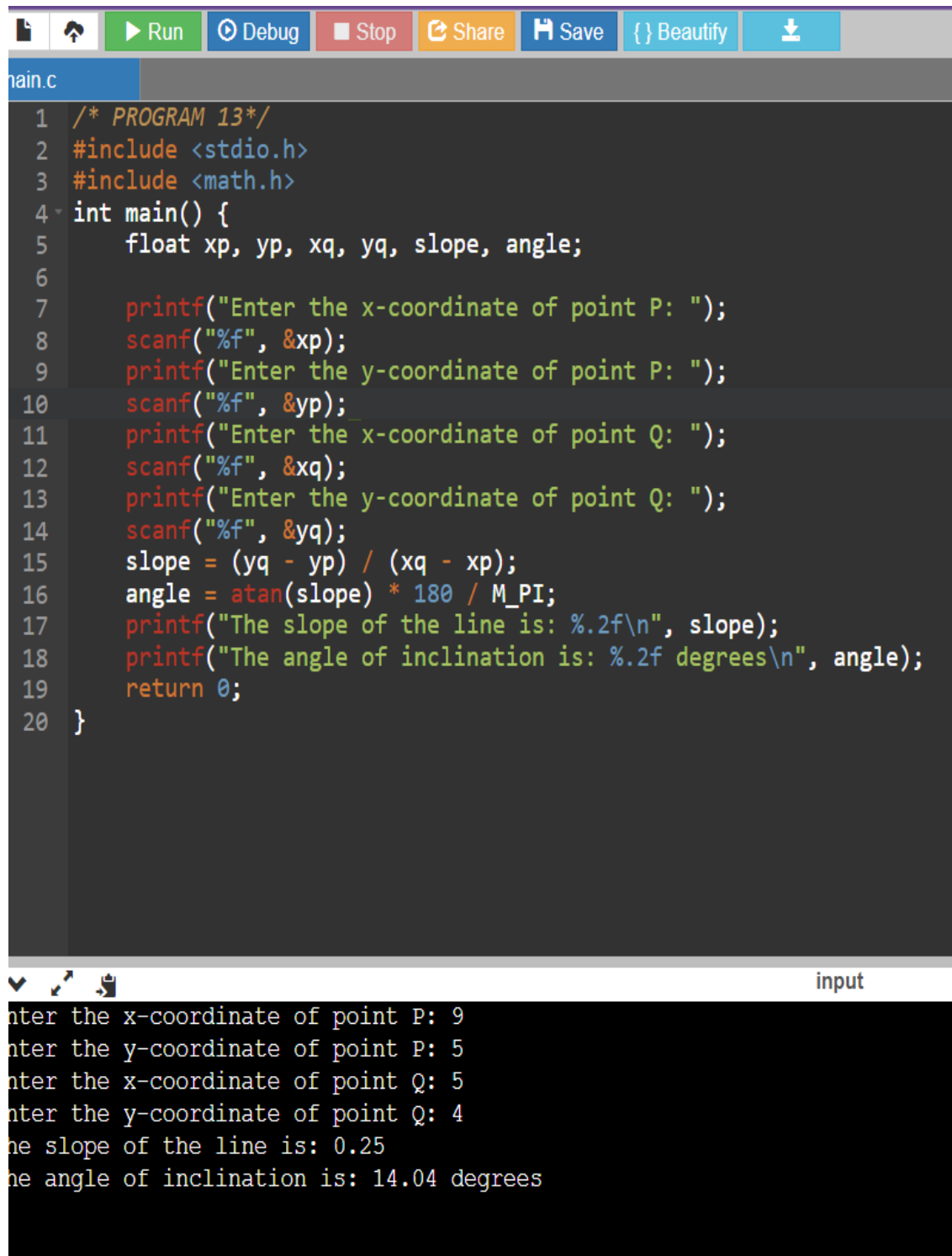
```
1  /* PROGRAM 12*/
2  #include <stdio.h>
3  int main() {
4      float basicPay, salary, hra, ta;
5      printf("Enter the basic pay: ");
6      scanf("%f", &basicPay);
7      hra = 0.15 * basicPay;
8      ta = 0.20 * basicPay;
9      salary = basicPay + hra + ta;
10     printf("The salary is: %.2f\n", salary);
11     return 0;
12 }
```

Below the code editor is a console window showing the program's execution. It prompts the user to enter the basic pay, which is 45000. It then calculates and displays the salary as 60750.00. The console also shows the message "...Program finished with exit code 0" and "Press ENTER to exit console." with a cursor.

```
Enter the basic pay: 45000
The salary is: 60750.00

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

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.



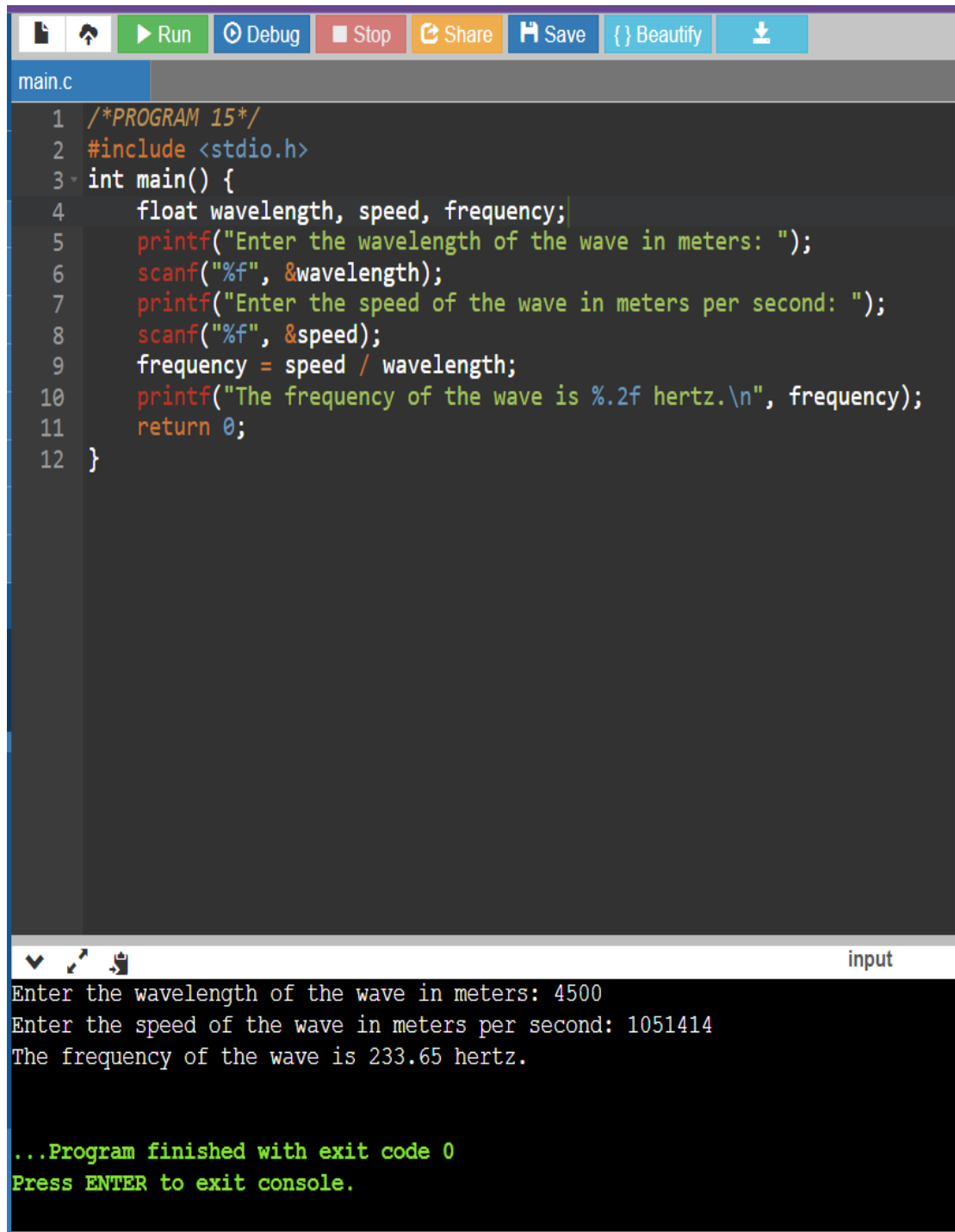
The image shows a code editor window with a toolbar at the top containing icons for file operations, a 'Run' button, 'Debug', 'Stop', 'Share', 'Save', 'Beautify', and a download icon. The editor displays a C program named 'main.c' with the following code:

```
1  /* PROGRAM 13*/
2  #include <stdio.h>
3  #include <math.h>
4  int main() {
5      float xp, yp, xq, yq, slope, angle;
6
7      printf("Enter the x-coordinate of point P: ");
8      scanf("%f", &xp);
9      printf("Enter the y-coordinate of point P: ");
10     scanf("%f", &yp);
11     printf("Enter the x-coordinate of point Q: ");
12     scanf("%f", &xq);
13     printf("Enter the y-coordinate of point Q: ");
14     scanf("%f", &yq);
15     slope = (yq - yp) / (xq - xp);
16     angle = atan(slope) * 180 / M_PI;
17     printf("The slope of the line is: %.2f\n", slope);
18     printf("The angle of inclination is: %.2f degrees\n", angle);
19     return 0;
20 }
```

Below the code editor is a terminal window showing the program's execution. The prompt 'input' is visible on the right. The user has entered the coordinates for point P (9, 5) and point Q (5, 4). The program outputs the slope as 0.25 and the angle of inclination as 14.04 degrees.

```
input
Enter the x-coordinate of point P: 9
Enter the y-coordinate of point P: 5
Enter the x-coordinate of point Q: 5
Enter the y-coordinate of point Q: 4
The slope of the line is: 0.25
The 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 $c = \lambda * f$.



The image shows a code editor window with a toolbar at the top containing icons for file operations, a 'Run' button, a 'Debug' button, a 'Stop' button, a 'Share' button, a 'Save' button, a 'Beautify' button, and a download icon. The file name 'main.c' is displayed in the editor's title bar. The code is written in C and calculates the frequency of a wave based on its wavelength and speed. The code is as follows:

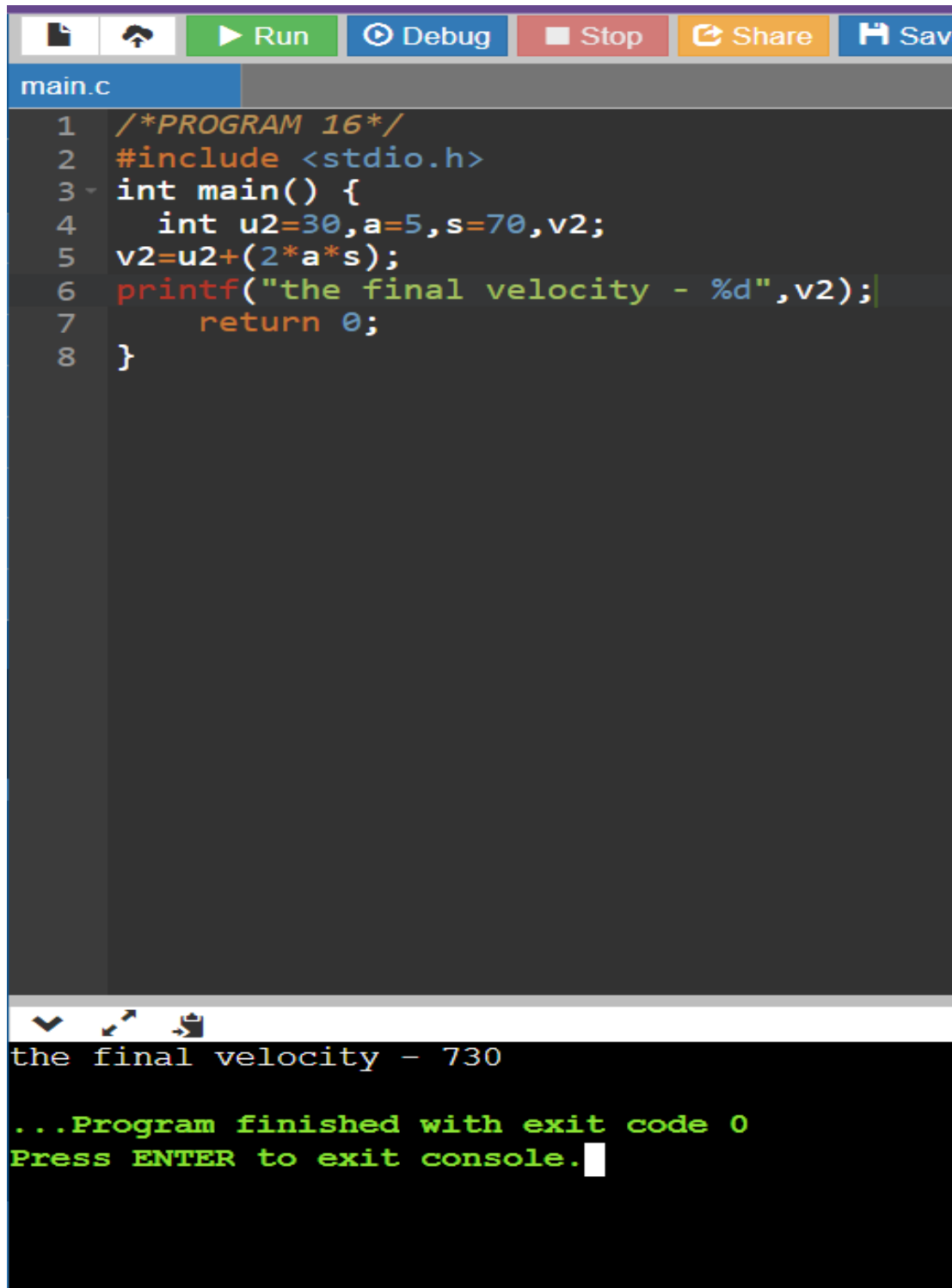
```
1  /*PROGRAM 15*/
2  #include <stdio.h>
3  int main() {
4      float wavelength, speed, frequency;
5      printf("Enter the wavelength of the wave in meters: ");
6      scanf("%f", &wavelength);
7      printf("Enter the speed of the wave in meters per second: ");
8      scanf("%f", &speed);
9      frequency = speed / wavelength;
10     printf("The frequency of the wave is %.2f hertz.\n", frequency);
11     return 0;
12 }
```

Below the code editor, the program's execution is shown in a console window. The input values are 4500 for wavelength and 1051414 for speed, resulting in a frequency of 233.65 hertz. The console output is as follows:

```
Enter the wavelength of the wave in meters: 4500
Enter the speed of the wave in meters per second: 1051414
The frequency of the wave is 233.65 hertz.

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

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: $v^2 = u^2 + 2as$]



The image shows a screenshot of a C program editor and its console output. The editor window, titled 'main.c', contains the following code:

```
1  /*PROGRAM 16*/
2  #include <stdio.h>
3  int main() {
4      int u2=30,a=5,s=70,v2;
5      v2=u2+(2*a*s);
6      printf("the final velocity - %d",v2);
7      return 0;
8  }
```

The console output shows the result of the program execution:

```
the final velocity - 730

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

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) $s = ut + \frac{1}{2}at^2$]

main.c

```
1  /*PROGRAM 17*/
2  #include <stdio.h>
3  int main() {
4      int a=4,t=3,v,u=0;
5      float s;
6      v=u+(a*t);
7      s=(u*t)+(0.5*a*t*t);
8      printf(" the velocity is - %d    ",v);
9      printf("the distance traveled- %0.2f",s);
10     return 0;
11 }
```

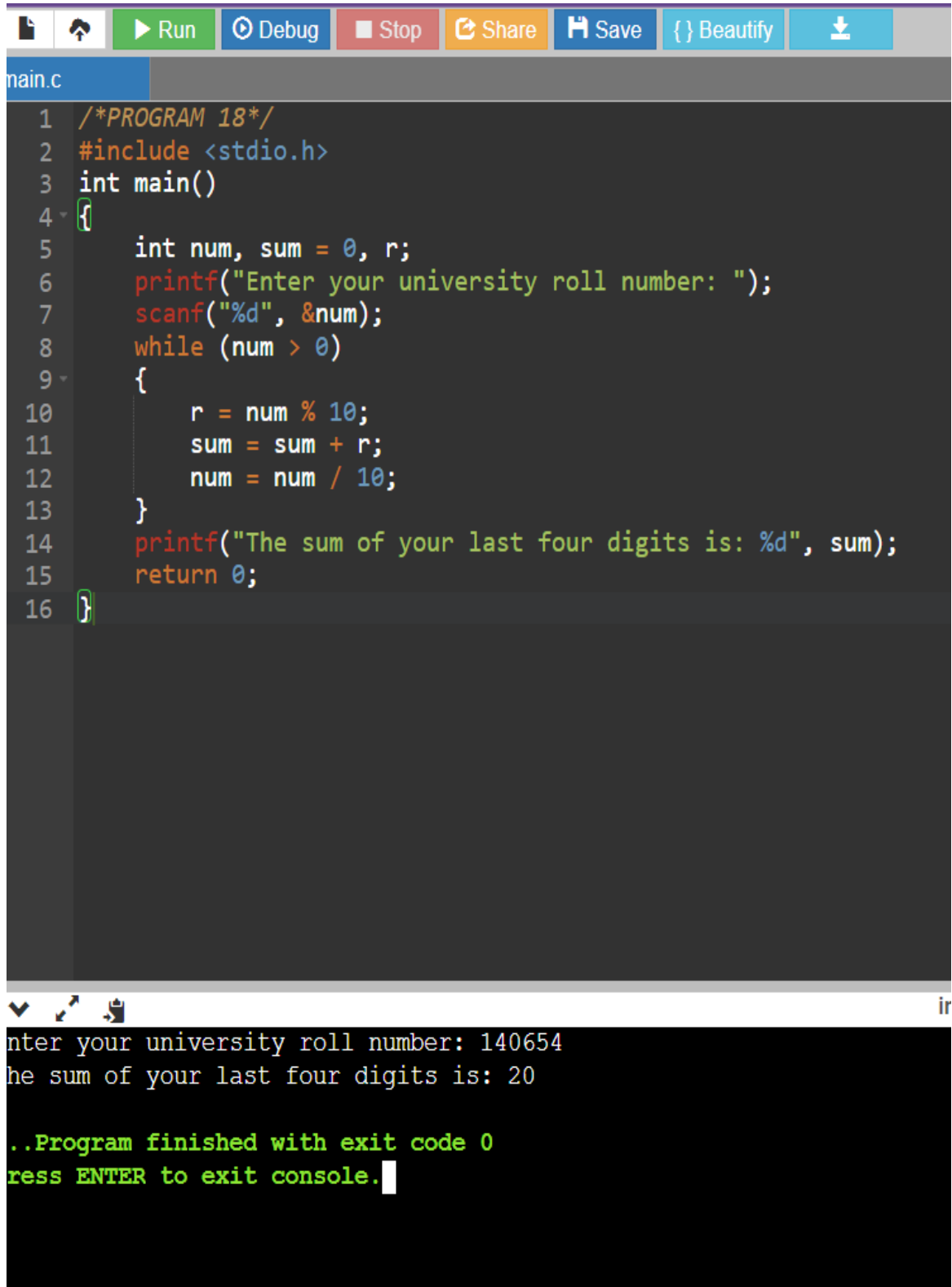


the velocity is - 12 the distance traveled- 18.00

...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 .



The image shows a code editor window with a toolbar at the top containing icons for file operations, a 'Run' button, a 'Debug' button, a 'Stop' button, a 'Share' button, a 'Save' button, a 'Beautify' button, and a download icon. The editor displays a C program named 'main.c' with the following code:

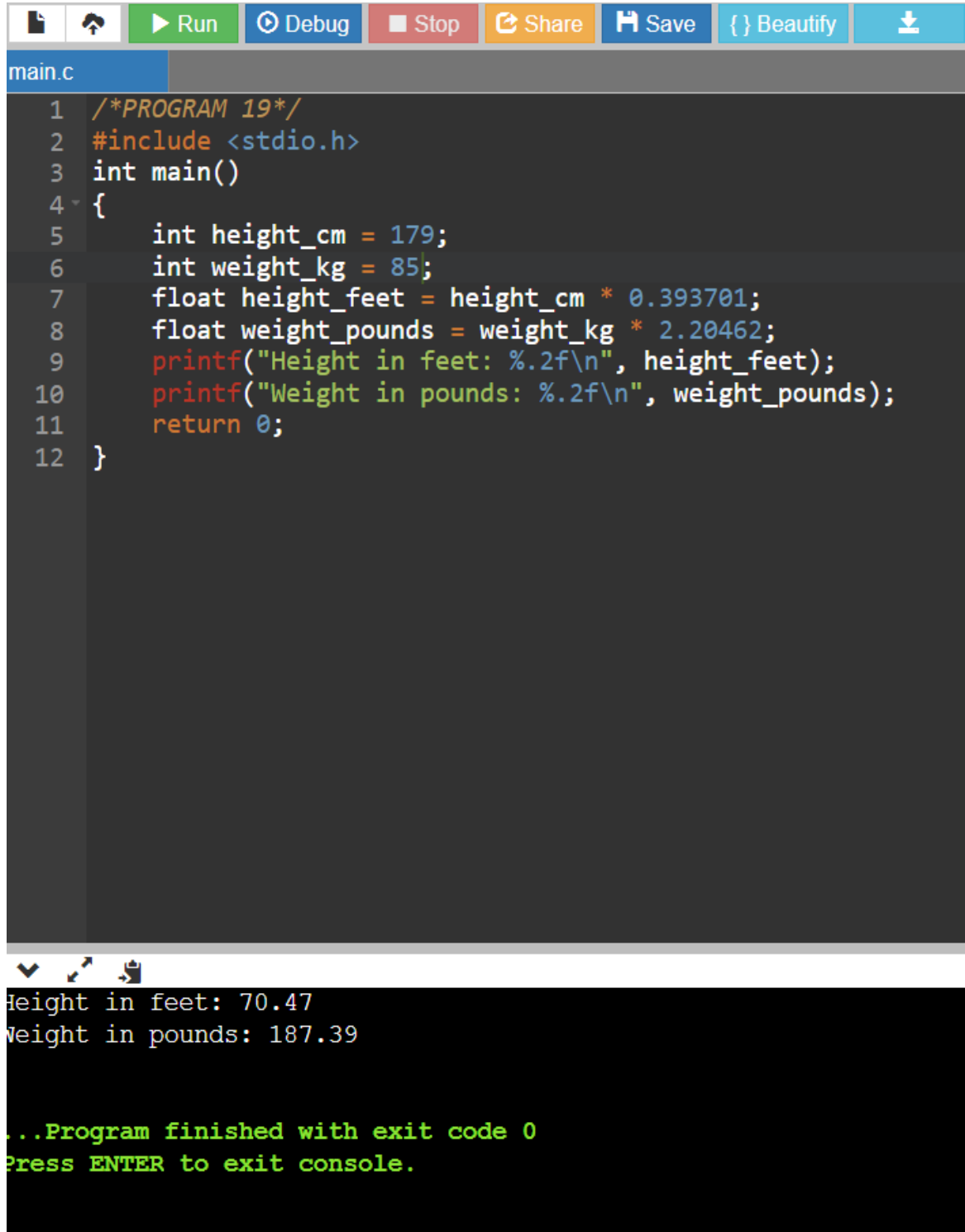
```
1  /*PROGRAM 18*/
2  #include <stdio.h>
3  int main()
4  {
5      int num, sum = 0, r;
6      printf("Enter your university roll number: ");
7      scanf("%d", &num);
8      while (num > 0)
9      {
10         r = num % 10;
11         sum = sum + r;
12         num = num / 10;
13     }
14     printf("The sum of your last four digits is: %d", sum);
15     return 0;
16 }
```

Below the editor is a terminal window showing the program's execution. It prompts for a university roll number, receives the input '140654', and outputs the sum of the last four digits as '20'. The terminal also shows the program finished with exit code 0 and a prompt to press ENTER to exit the console.

```
Enter your university roll number: 140654
The sum of your last four digits is: 20

..Program finished with exit code 0
Press 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 feet and pounds respectively. **Note :- 1 cm = 0.393701inch , 1 Kg = 2.20462**



The image shows a screenshot of a C program editor and its execution output. The editor window, titled 'main.c', contains the following code:

```
1  /*PROGRAM 19*/
2  #include <stdio.h>
3  int main()
4  {
5      int height_cm = 179;
6      int weight_kg = 85;
7      float height_feet = height_cm * 0.393701;
8      float weight_pounds = weight_kg * 2.20462;
9      printf("Height in feet: %.2f\n", height_feet);
10     printf("Weight in pounds: %.2f\n", weight_pounds);
11     return 0;
12 }
```

Below the editor, the program's output is displayed in a console window. It shows the calculated height in feet (70.47) and weight in pounds (187.39), followed by a message indicating the program finished with exit code 0 and a prompt to press ENTER to exit the console.

```
Height in feet: 70.47
Weight in pounds: 187.39

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

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

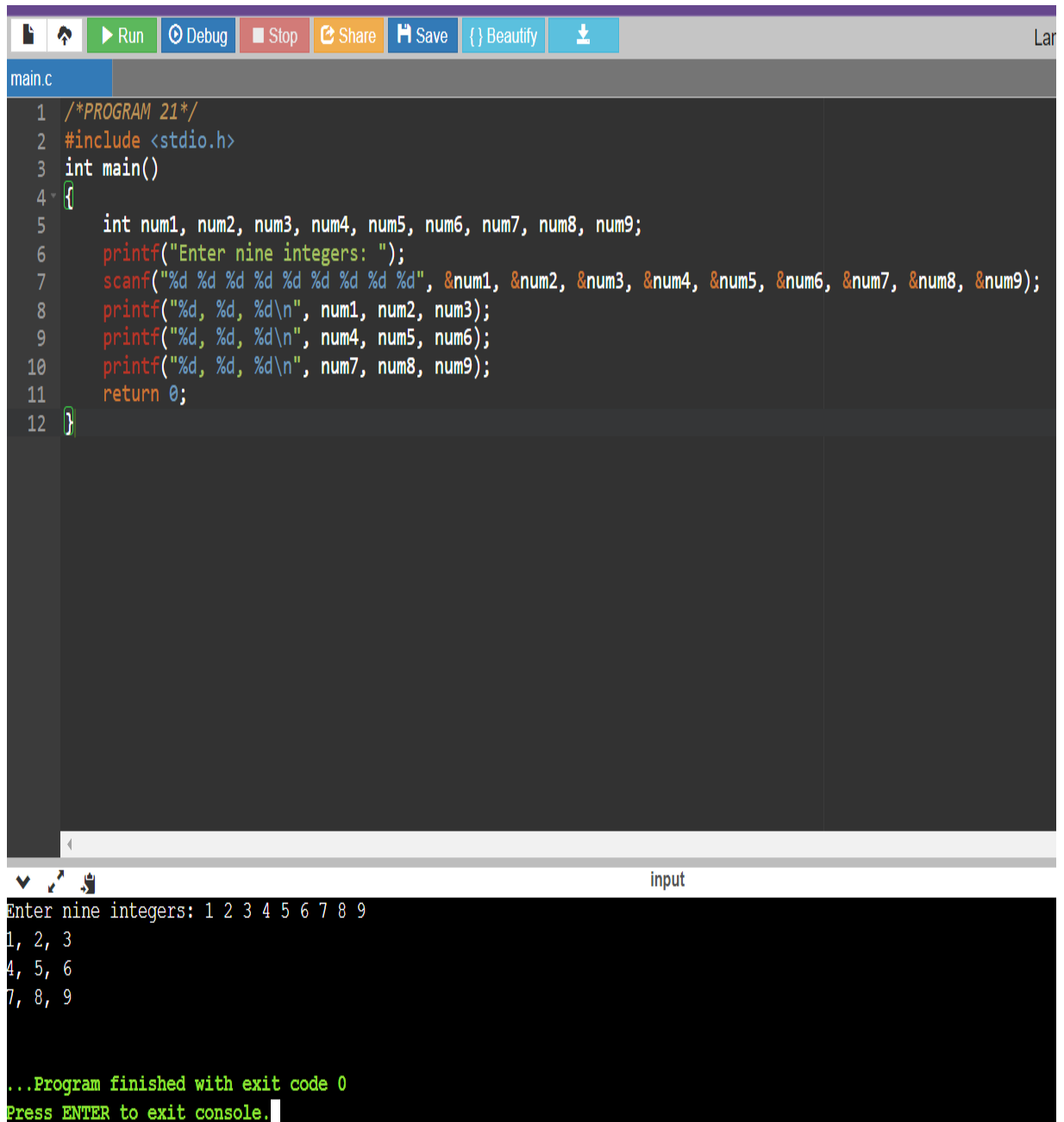
- a) A character variable named option.
- b) An integer variable sum initialized to 0
- c) A floating point variable, product, initialized to 1

```
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.



```
1  /*PROGRAM 21*/
2  #include <stdio.h>
3  int main()
4  {
5      int num1, num2, num3, num4, num5, num6, num7, num8, num9;
6      printf("Enter nine integers: ");
7      scanf("%d %d %d %d %d %d %d %d %d", &num1, &num2, &num3, &num4, &num5, &num6, &num7, &num8, &num9);
8      printf("%d, %d, %d\n", num1, num2, num3);
9      printf("%d, %d, %d\n", num4, num5, num6);
10     printf("%d, %d, %d\n", num7, num8, num9);
11     return 0;
12 }
```

input

```
Enter nine integers: 1 2 3 4 5 6 7 8 9
1, 2, 3
4, 5, 6
7, 8, 9

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

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);
}
```

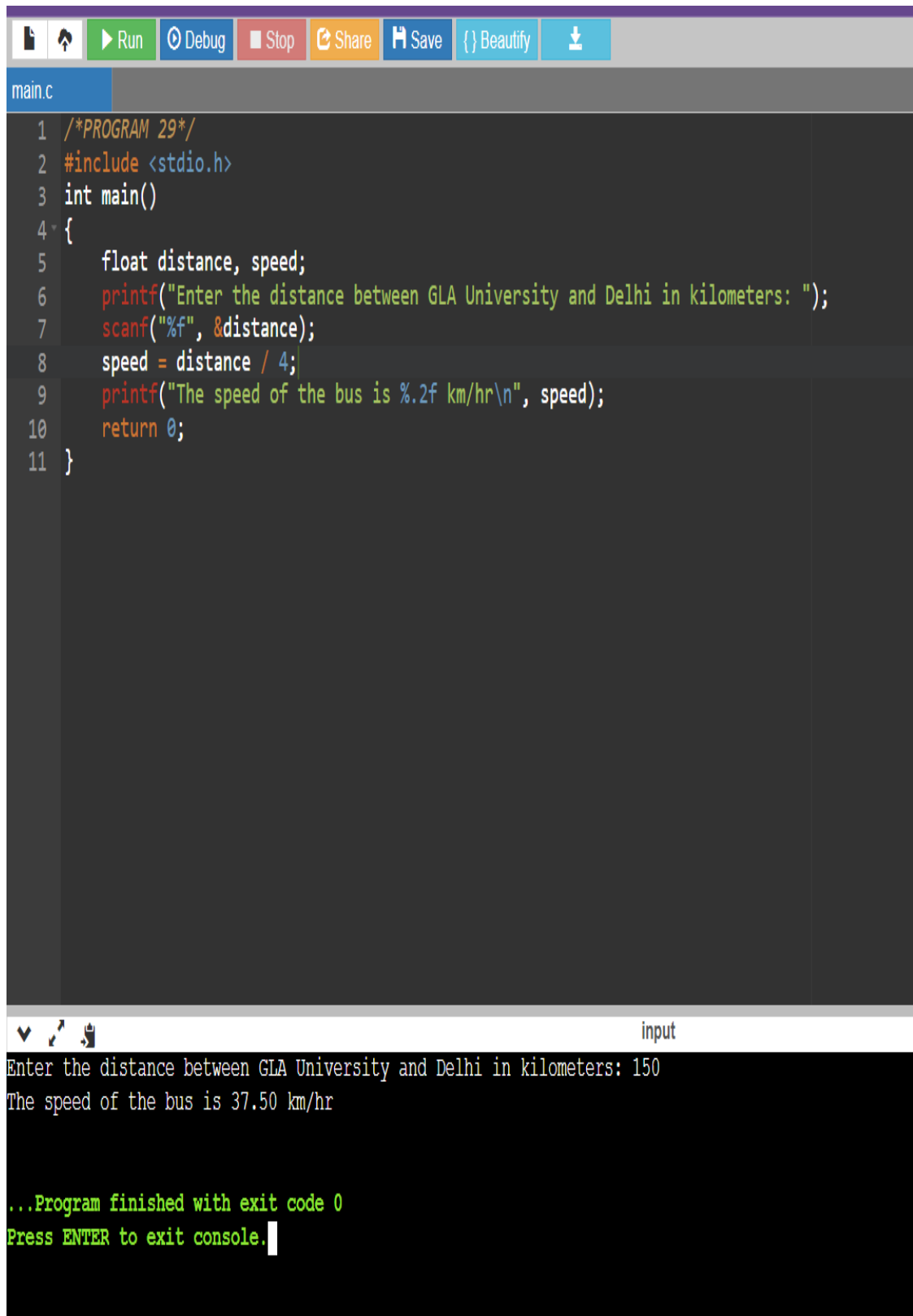
Q27. What is the meaning of following statement?

```
printf(“%d”,scanf(“%d%d”,&a,&b));
```

Q28. What will be the output of following program?

```
#include <stdio.h>
void main()
{
printf(" \nC %% 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



The image shows a C program editor window with a toolbar at the top containing icons for file operations, running, debugging, stopping, sharing, saving, beautifying, and downloading. The editor displays a C program named 'main.c' with the following code:

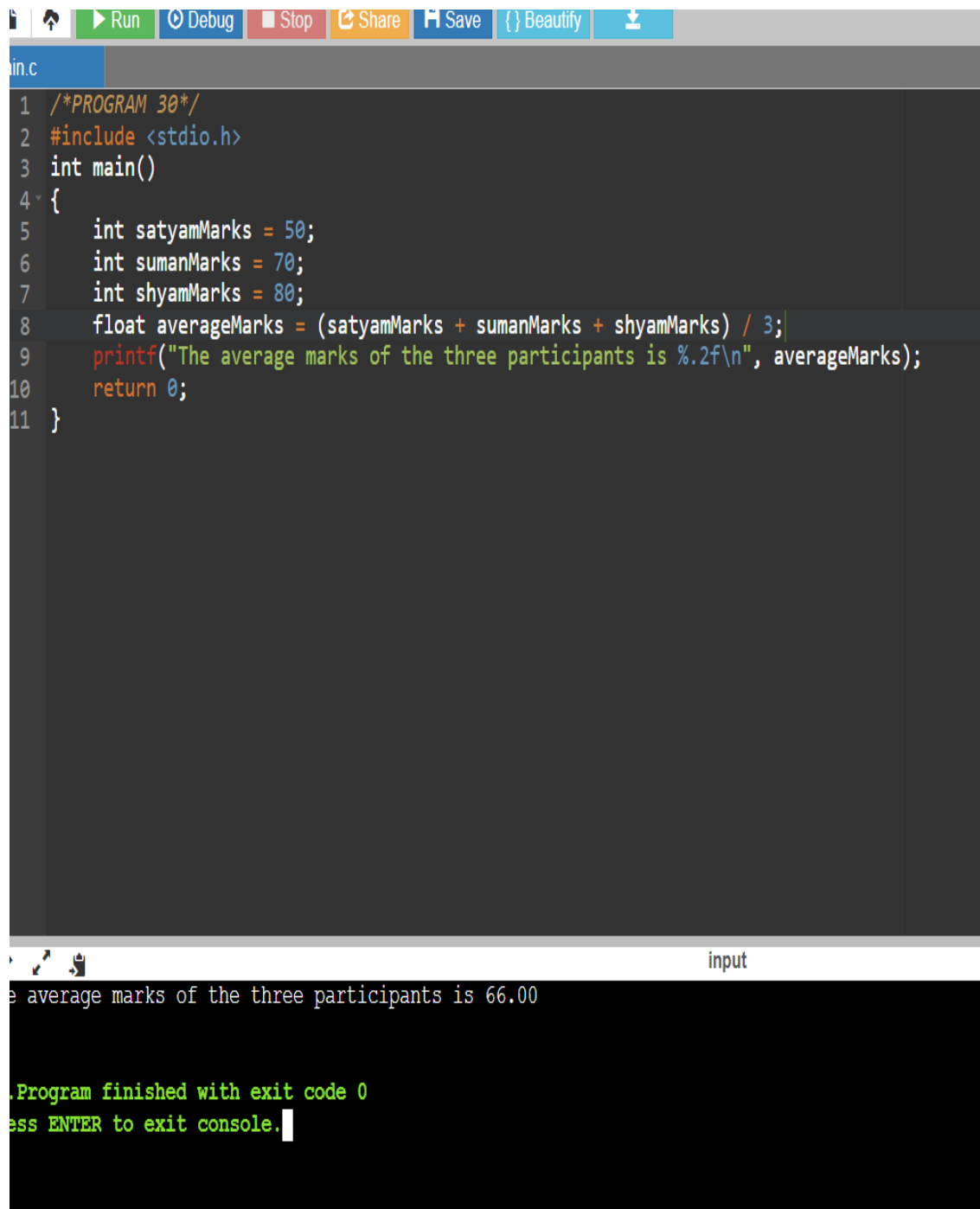
```
1  /*PROGRAM 29*/
2  #include <stdio.h>
3  int main()
4  {
5      float distance, speed;
6      printf("Enter the distance between GLA University and Delhi in kilometers: ");
7      scanf("%f", &distance);
8      speed = distance / 4;
9      printf("The speed of the bus is %.2f km/hr\n", speed);
10     return 0;
11 }
```

Below the editor is a console window titled 'input'. It shows the program's execution with the following output:

```
Enter the distance between GLA University and Delhi in kilometers: 150
The speed of the bus is 37.50 km/hr

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

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.



The image shows a code editor window with a dark theme. At the top, there is a toolbar with buttons for 'Run' (green), 'Debug' (blue), 'Stop' (red), 'Share' (orange), 'Save' (blue), 'Beautify' (blue), and a download icon. Below the toolbar, the file name 'in.c' is visible. The code is as follows:

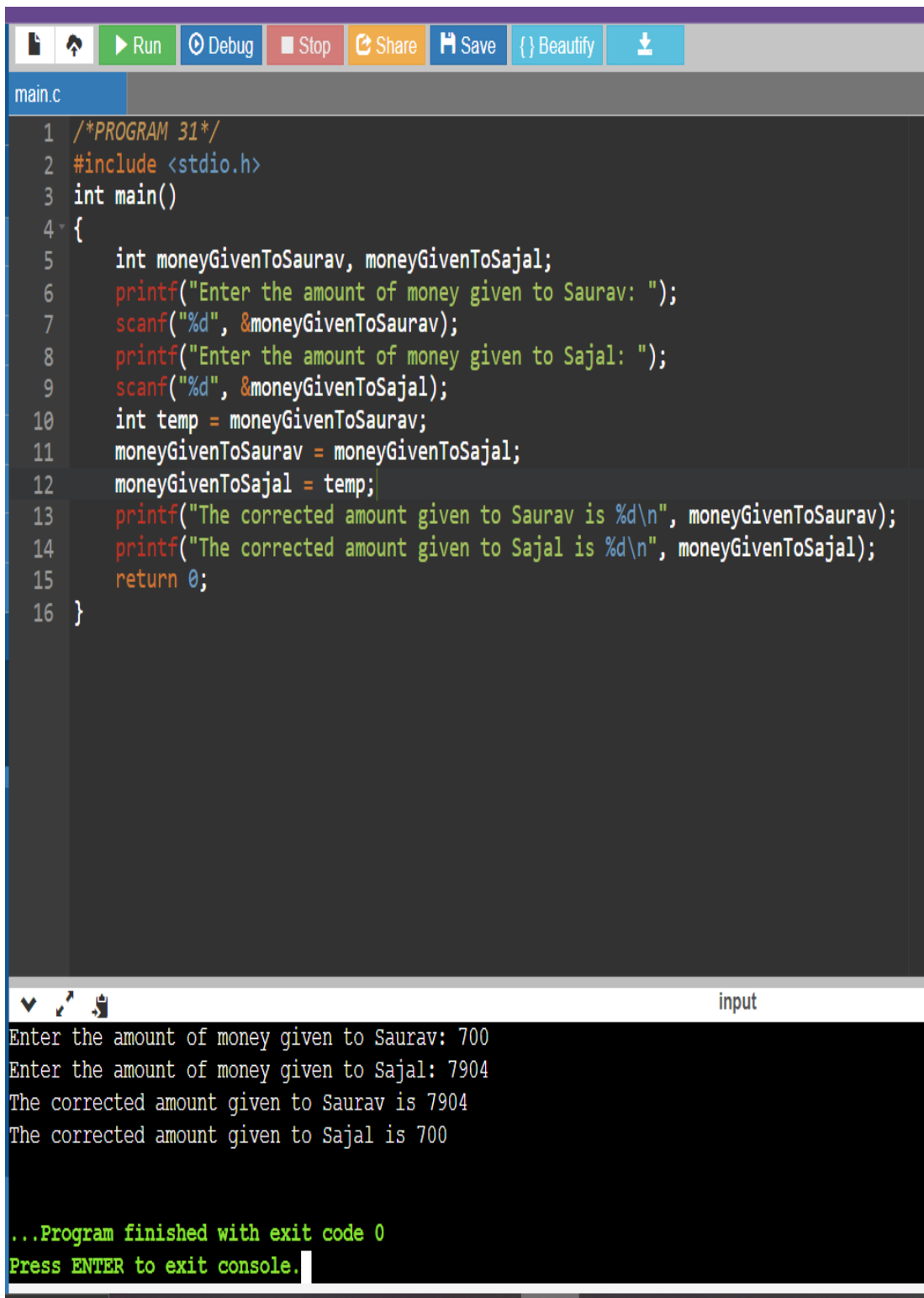
```
1  /*PROGRAM 30*/
2  #include <stdio.h>
3  int main()
4  {
5      int satyamMarks = 50;
6      int sumanMarks = 70;
7      int shyamMarks = 80;
8      float averageMarks = (satyamMarks + sumanMarks + shyamMarks) / 3;
9      printf("The average marks of the three participants is %.2f\n", averageMarks);
10     return 0;
11 }
```

Below the code editor, there is a terminal window. The output of the program is displayed in a monospaced font:

```
input
The average marks of the three participants is 66.00

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

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.



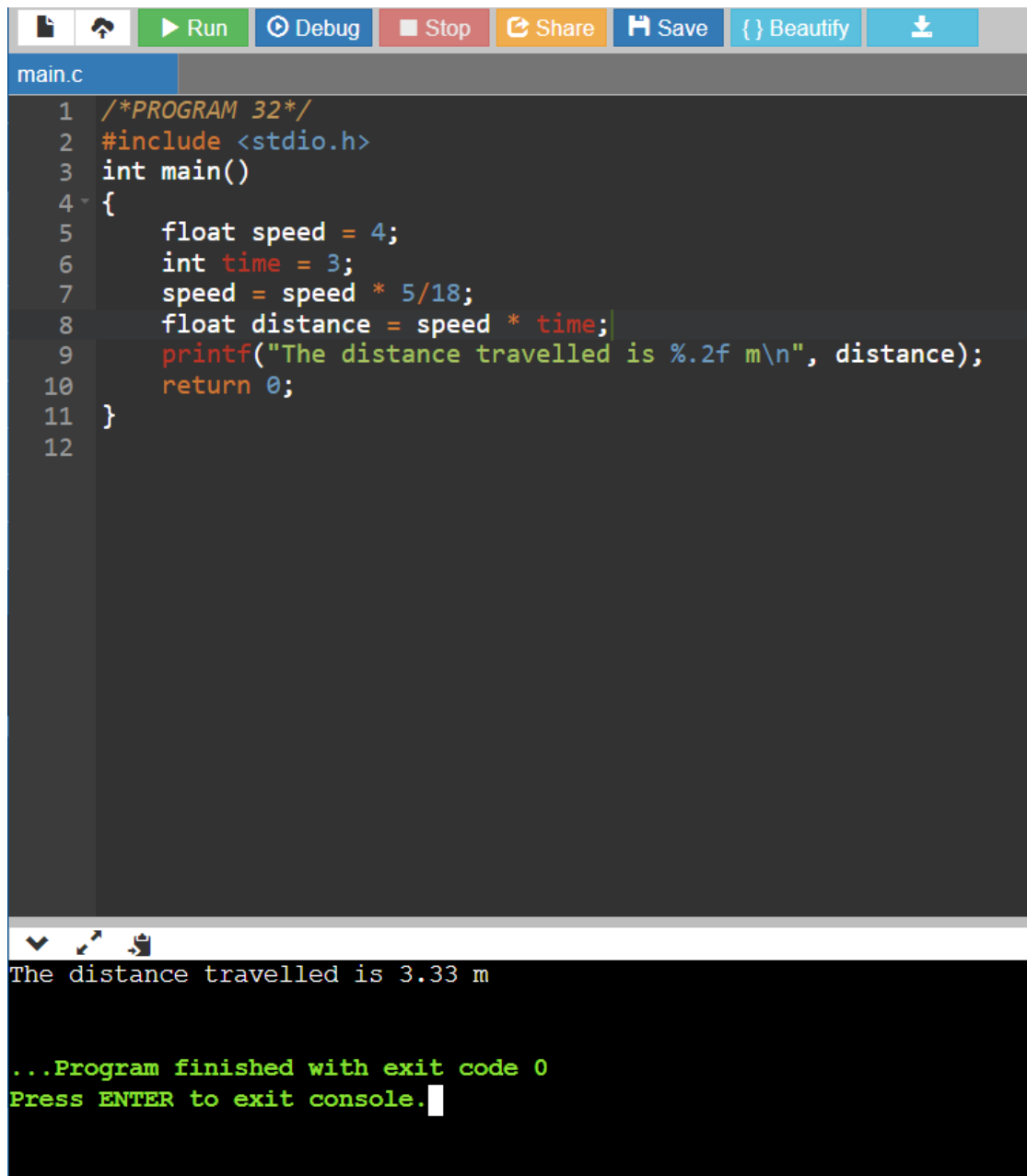
```
main.c
1  /*PROGRAM 31*/
2  #include <stdio.h>
3  int main()
4  {
5      int moneyGivenToSaurav, moneyGivenToSajal;
6      printf("Enter the amount of money given to Saurav: ");
7      scanf("%d", &moneyGivenToSaurav);
8      printf("Enter the amount of money given to Sajal: ");
9      scanf("%d", &moneyGivenToSajal);
10     int temp = moneyGivenToSaurav;
11     moneyGivenToSaurav = moneyGivenToSajal;
12     moneyGivenToSajal = temp;
13     printf("The corrected amount given to Saurav is %d\n", moneyGivenToSaurav);
14     printf("The corrected amount given to Sajal is %d\n", moneyGivenToSajal);
15     return 0;
16 }
```

input

```
Enter the amount of money given to Saurav: 700
Enter the amount of money given to Sajal: 7904
The corrected amount given to Saurav is 7904
The corrected amount given to Sajal is 700

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


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.



The image shows a screenshot of a C program editor with a toolbar at the top containing icons for file operations, a 'Run' button, a 'Debug' button, a 'Stop' button, a 'Share' button, a 'Save' button, a 'Beautify' button, and a download icon. The editor window shows a file named 'main.c' with the following code:

```
1  /*PROGRAM 32*/
2  #include <stdio.h>
3  int main()
4  {
5      float speed = 4;
6      int time = 3;
7      speed = speed * 5/18;
8      float distance = speed * time;
9      printf("The distance travelled is %.2f m\n", distance);
10     return 0;
11 }
12
```

Below the editor, the program's output is displayed in a console window. It shows the calculated distance and a message indicating the program has finished.

```
The distance travelled is 3.33 m

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

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:

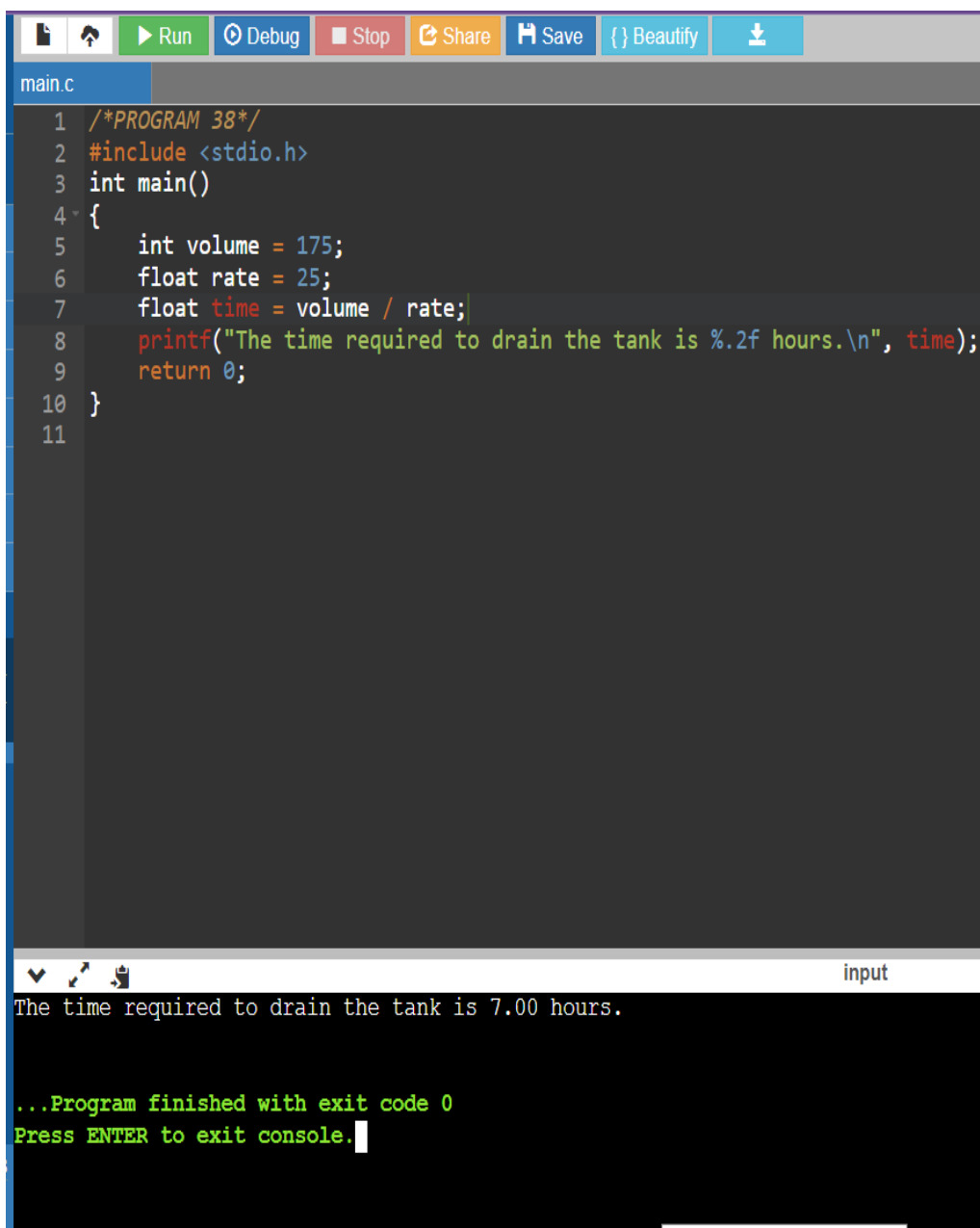
gross-salary INTEREST , salary of emp , avg. , thereisbookinmysoup

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.



The image shows a screenshot of a C program editor. The editor has a toolbar at the top with buttons for Run, Debug, Stop, Share, Save, Beautify, and a download icon. The file name is 'main.c'. The code is as follows:

```
1  /*PROGRAM 38*/
2  #include <stdio.h>
3  int main()
4  {
5      int volume = 175;
6      float rate = 25;
7      float time = volume / rate;
8      printf("The time required to drain the tank is %.2f hours.\n", time);
9      return 0;
10 }
11
```

Below the editor, there is a console window. It shows the output of the program: "The time required to drain the tank is 7.00 hours." followed by "...Program finished with exit code 0" and "Press ENTER to exit console.".

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-

$$(473.42)_8 = (100111011.10001)_2, (315.53125)_{10}, (13B)_{16}, (2230.23120034231200342312)_5$$

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

