

LAB FILE

C PROGRAM EXERCISE: UNIT 1

UNIT 2



BATCH - 2023-24

BCA 1st YEAR

SUBMITTED BY - SAHIL KUMAR ROLL NO. - 69

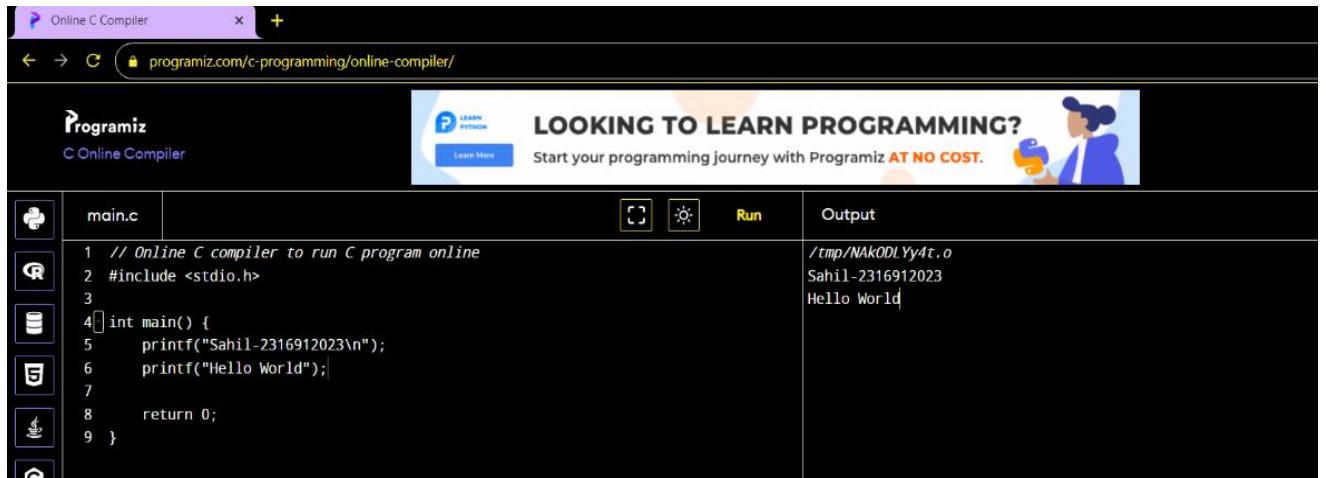
STUDENT ID- 2316912023 SECTION - I

SUBMITTED TO - MR. RISHI KUMAR

MS. POOJA CHAHAR

Assist. PROFESSOR, CSIT, GEU, DEHRADUN

1. WAP for Hello World



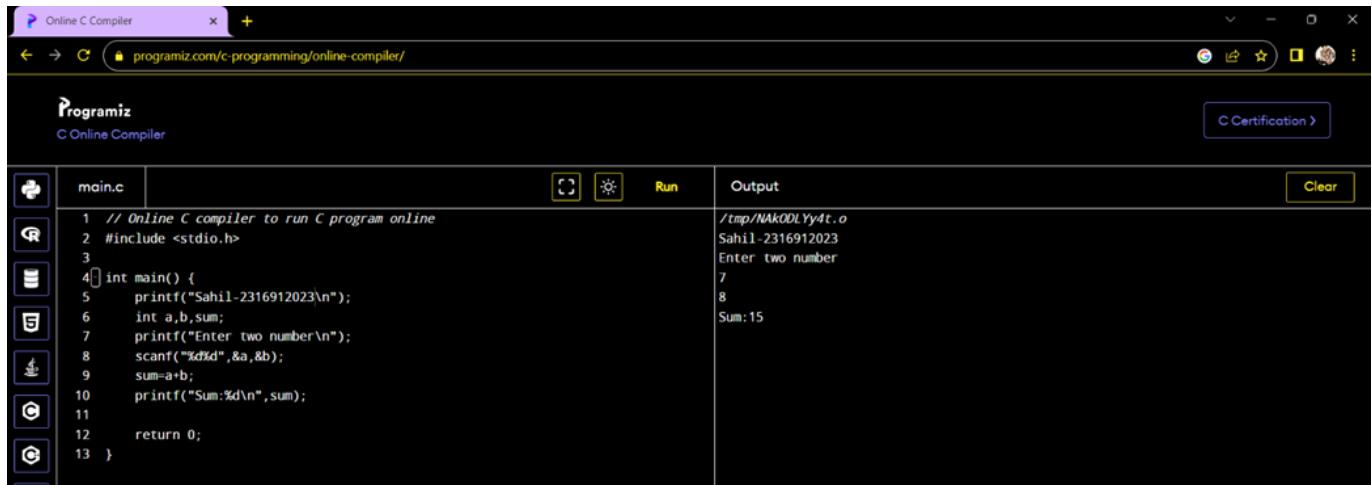
The screenshot shows the Programiz Online C Compiler interface. The code editor contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     printf("Hello World");
7
8     return 0;
9 }
```

The output window displays the results of running the program:

```
/tmp/NAkODLYy4t.o
Sahil-2316912023
Hello World
```

2. WAP to add two numbers



The screenshot shows the Programiz Online C Compiler interface. The code editor contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a,b,sum;
7     printf("Enter two number\n");
8     scanf("%d%d",&a,&b);
9     sum=a+b;
10    printf("Sum:%d\n",sum);
11
12    return 0;
13 }
```

The output window displays the results of running the program, showing user input and the calculated sum:

```
/tmp/NAkODLYy4t.o
Sahil-2316912023
Enter two number
7
8
Sum:15
```

3. WAP to find area of circle

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     double radius,area;
7     printf("Enter the radius of the circle:");
8     scanf("%lf",&radius);
9     //calculate the area using the formula:A=pi*r*r
10    area=3.14*radius*radius;
11    printf("The area of the circle with radius %.2lf is %.2lf\n",radius,area);
12
13    return 0;
14 }
```

The output window shows the results of running the program:

```
/tmp/GFR3LCldV.y.o
Sahil-2316912023
Enter the radius of the circle:6
The area of the circle with radius 6.00 is 113.04
```

4. WAP to divide two numbers

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a,b,quotient;
7     printf("Enter the first number:\n");
8     scanf("%d",&a);
9     printf("Enter the second number:\n");
10    scanf("%d",&b);
11    quotient=a/b;
12    printf("Quotient:%d\n",quotient);
13
14    return 0;
15 }
```

The output window shows the results of running the program:

```
/tmp/GFR3LCldV.y.o
Sahil-2316912023
Enter the first number:
9
Enter the second number:
3
Quotient:3
```

5. WAP to print ASCII value

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     char character;
7     printf("Enter a character:");
8     scanf("%c",&character);
9     printf("ASCII value of %c is %d\n",character,character);
10
11    return 0;
12 }
```

The output window shows the compiled file path and the results of running the program:

```
/tmp/GFR3LCIdVy.o
Sahil-2316912023
Enter a character:r
ASCII value of r is 114
```

6. WAP to multiply floating point numbers

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     float a,b,result;
7     printf("Enter the two floatint-point numbers:\n");
8     scanf("%f%f",&a,&b);
9     result=a*b;
10    printf("Result of multiplication:%f\n",result);
11
12    return 0;
13 }
```

The output window shows the compiled file path and the results of running the program:

```
/tmp/Kw6tjh6r3o.o
Sahil-2316912023
Enter the two floatint-point numbers:
8.9
8.8
Result of multiplication:78.320000
```

7. WAP to swap two variables number by using third variable.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a,b,c;
7     printf("Enter the value for two numbers:\n");
8     scanf("%d%d", &a, &b);
9     c=a;
10    a=b;
11    b=c;
12    printf("After swapping:\n");
13    printf("a=%d\n", a);
14    printf("b=%d\n", b);
15
16    return 0;
17 }
```

The output window shows the results of running the program with inputs 7 and 9:

```
/tmp/Kw6tjh6r3o.o
Sahil-2316912023
Enter the value for two numbers:
7
9
After swapping:
a=9
b=7
```

8. WAP to swap two variables number without using third variable.

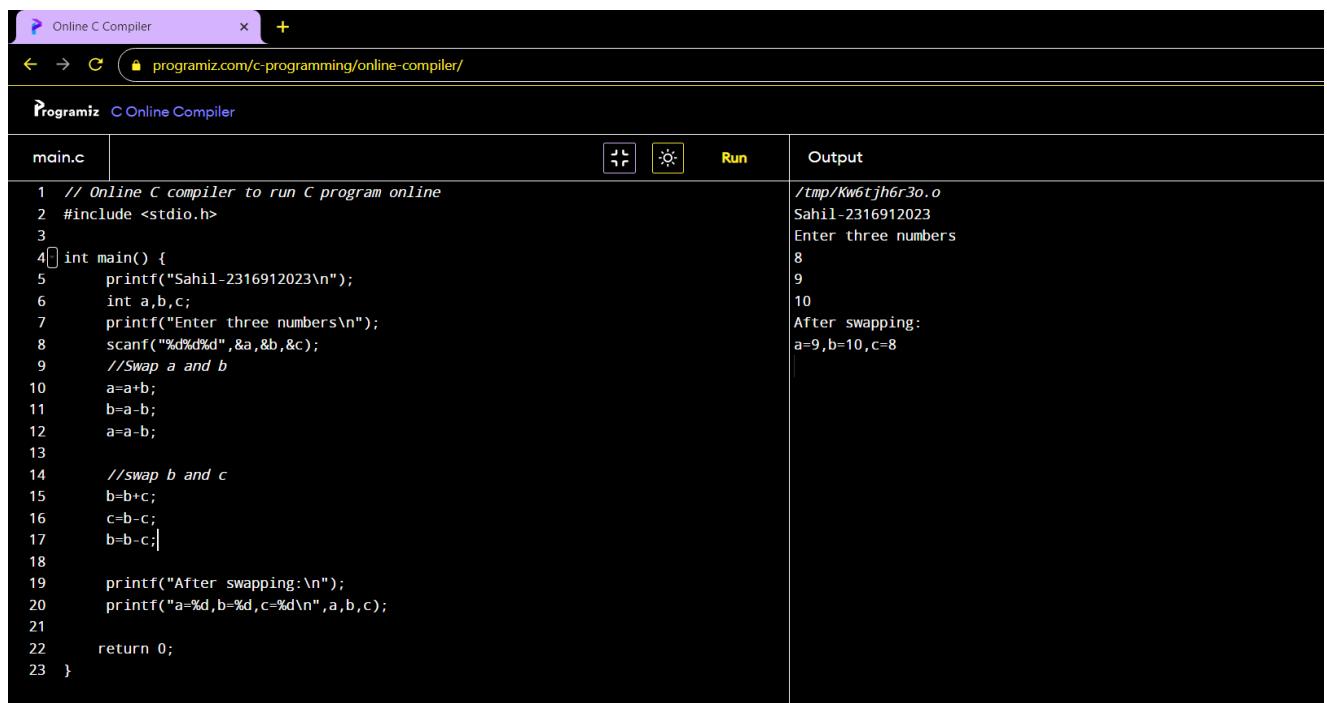
The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a,b;
7     printf("Enter the value of a and b\n");
8     scanf("%d%d", &a, &b);
9     a=a^b;
10    b=a^b;
11    a=a^b;
12    printf("After swapping:\n");
13    printf("a=%d\n", a);
14    printf("b=%d\n", b);
15
16    return 0;
17 }
```

The output window shows the results of running the program with inputs 4 and 8:

```
/tmp/Kw6tjh6r3o.o
Sahil-2316912023
Enter the value of a and b
4
8
After swapping:
a=8
b=4
```

9. WAP to swap three variable numbers without using third variable.



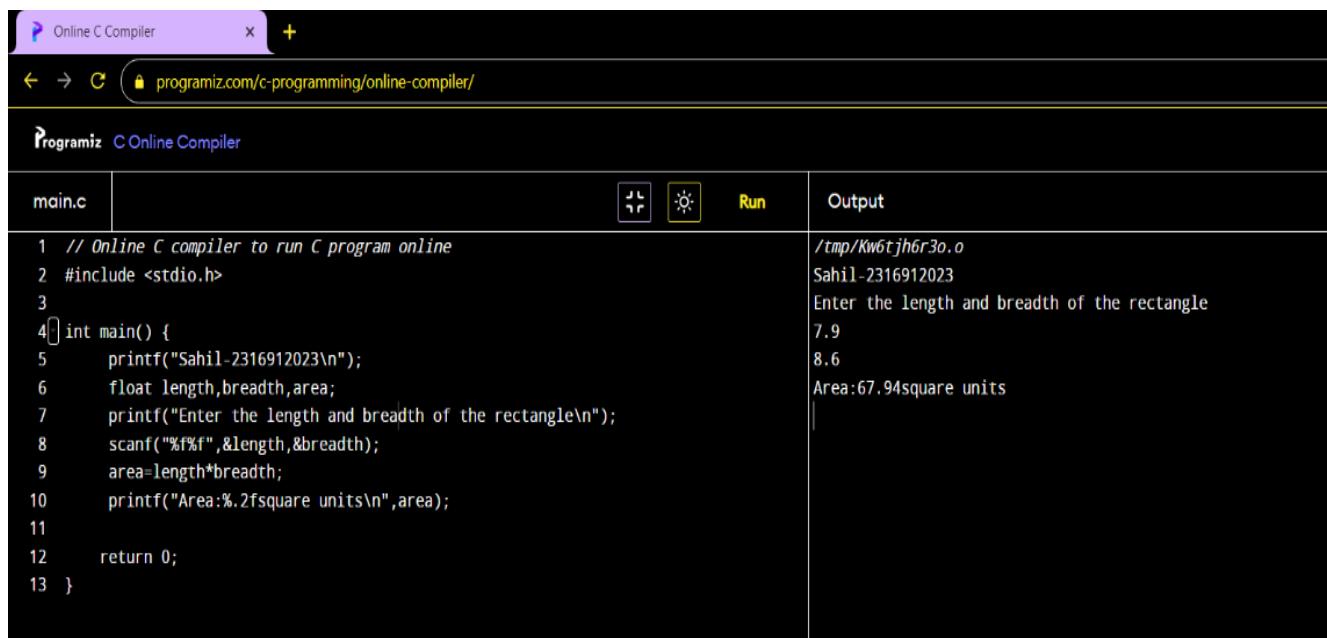
The screenshot shows the Programiz C Online Compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a,b,c;
7     printf("Enter three numbers\n");
8     scanf("%d%d%d",&a,&b,&c);
9     //Swap a and b
10    a=a+b;
11    b=a-b;
12    a=a-b;
13
14    //swap b and c
15    b=b+c;
16    c=b-c;
17    b=b-c;
18
19    printf("After swapping:\n");
20    printf("a=%d,b=%d,c=%d\n",a,b,c);
21
22    return 0;
23 }
```

The output window shows the following interaction:

```
/tmp/Kw6tjh6r3o.o
Sahil-2316912023
Enter three numbers
8
9
10
After swapping:
a=9,b=10,c=8
```

10. WAP to find area of rectangle.



The screenshot shows the Programiz C Online Compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     float length,breadth,area;
7     printf("Enter the length and breadth of the rectangle\n");
8     scanf("%f%f",&length,&breadth);
9     area=length*breadth;
10    printf("Area: %.2f square units\n",area);
11
12    return 0;
13 }
```

The output window shows the following interaction:

```
/tmp/Kw6tjh6r3o.o
Sahil-2316912023
Enter the length and breadth of the rectangle
7.9
8.6
Area: 67.94 square units
```

11. WAP to find area of square

The screenshot shows a web-based C compiler interface. The title bar says "Online C Compiler". The URL is "programiz.com/c-programming/online-compiler/". The code editor contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     float side,area;
7     printf("Enter the side length of square:\n");
8     scanf("%f",&side);
9     area=side*side;
10    printf("Area of square:%.2f square units\n",area);
11
12    return 0;
13 }
```

The output window shows the results of running the program. It includes the file path, user name, prompt, input, and output.

main.c			Output
			/tmp/UQnu33VgGF.o Sahil-2316912023 Enter the side length of square: 9.7 Area of square:94.09 square units

12. a. WAP to find area of right angle triangle.

The screenshot shows a web-based C compiler interface. The title bar says "Online C Compiler". The URL is "programiz.com/c-programming/online-compiler/". The code editor contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     float base,height,area;
7     printf("Enter the base and height of right angle triangle:\n");
8     scanf("%f%f",&base,&height);
9     area=0.5*base*height;
10    printf("Area of right angle triangle:%f\n",area);
11
12    return 0;
13 }
```

The output window shows the results of running the program. It includes the file path, user name, prompt, input, and output.

main.c			Output
			/tmp/UQnu33VgGF.o Sahil-2316912023 Enter the base and height of right angle triangle: 5 8 Area of right angle triangle:20.000000

b. WAP to find area of isosceles triangle.

The screenshot shows an online C compiler interface on programiz.com. The code in main.c calculates the area of an isosceles triangle given its base and one equal side. The output shows the compiled file, user input, and the calculated area.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include<math.h>
4 int main(){
5     printf("Sahil-2316912023\n");
6     float base,side,area;
7     printf("Enter the length of the base and one of the equal side of isosceles
triangle:\n");
8     scanf("%f%f",&base,&side);
9     area=0.5*base*sqrt(side*side-(base/2)*(base/2));
10    printf("Area of isosceles triangle:%f\n",area);
11
12    return 0;
13 }
```

Output:

```
/tmp/UQnu33VgGF.o
Sahil-2316912023
Enter the length of the base and one of the equal side of isosceles triangle:
8.6
7
Area of isosceles triangle:23.751419
```

c. WAP to find area of any triangle with 3 sides.

The screenshot shows an online C compiler interface on programiz.com. The code in main.c calculates the area of a triangle using Heron's formula, given the lengths of all three sides. The output shows the compiled file, user input, and the calculated area.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include<math.h>
4 int main(){
5     printf("Sahil-2316912023\n");
6     float a,b,c,s,area;
7     printf("Enter the length of the three sides of triangle:\n");
8     scanf("%f%f%f",&a,&b,&c);
9     s=(a+b+c)/2;
10    area=sqrt(s*(s-a)*(s-b)*(s-c));
11    printf("Area of any triangle:%f\n",area);
12
13    return 0;
14 }
```

Output:

```
/tmp/UQnu33VgGF.o
Sahil-2316912023
Enter the length of the three sides of triangle:
7
8.9
5
Area of any triangle:17.451462
```

13. WAP to find area and volume of cube.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include<math.h>
4 int main(){
5     printf("Sahil-2316912023\n");
6     float side,area,volume;
7     printf("Enter the length of the side of the cube:\n");
8     scanf("%f",&side);
9     area=6*side*side;
10    volume=side*side*side;
11    printf("Surface area of cube:%.2f square units\n",area);
12    printf("Volume of the cube:%.2f cubic units",volume);
13
14    return 0;
15 }
```

The output window shows the results of running the program with input 89.76:

```
/tmp/UQnu33VgGF.o
Sahil-2316912023
Enter the length of the side of the cube:
89.76
Surface area of cube:48341.15 square units
Volume of the cube:723183.56 cubic units
```

14. WAP to find area and volume of cuboid.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include<math.h>
4 int main(){
5     printf("Sahil-2316912023\n");
6     float length,breadth,height;
7     float area,volume;
8     printf("Enter the length, breadth, and height of the cuboid:\n");
9     scanf("%f%f%f",&length,&breadth,&height);
10    area=2*(length*breadth+length*height+breadth*height);
11    volume=length*breadth*height;
12    printf("Surface area of the cuboid:%.2f\n",area);
13    printf("Volume of the cuboid:%.2f\n",volume);
14
15    return 0;
16 }
```

The output window shows the results of running the program with input 6, 7.9, and 10:

```
/tmp/UQnu33VgGF.o
Sahil-2316912023
Enter the length, breadth, and height of the cuboid:
6
7.9
10
Surface area of the cuboid:372.80
Volume of the cuboid:474.00
```

15. WAP to find the largest number using Logical AND operator.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include<math.h>
4 int main(){
5     printf("Sahil-2316912023\n");
6     int a,b;
7     printf("Enter the two numbers:\n");
8     scanf("%d%d",&a,&b);
9     if(a>b&&a!=b)
10    {
11         printf("%d is the largest number.\n",a);
12     } else if(b>&a!=b)
13    {
14         printf("%d is the largest number.\n",b);
15     } else
16    {
17         printf("Both numbers are equal.\n");
18     }
19
20     return 0;
21 }
```

The output window shows the results of running the program with input 786 and 809:

```
/tmp/UQnu33VgGF.o
Sahil-2316912023
Enter the two numbers:
786
809
809 is the largest number.
```

16. WAP to validate the username and password entered by the user is correct or not using the predefined username and password.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include<math.h>
4 int main(){
5     printf("Sahil-2316912023\n");
6     //Predefined username and password
7     char predefinedUsername[]="myusername";
8     char predefinedPassword[]="mypassword";
9     //User input for username and password
10    char enteredUsername[100];
11    char enteredPassword[100];
12    printf("Enter username:");
13    scanf("%s",enteredUsername);
14    printf("Enter password:");
15    scanf("%s",enteredPassword);
16    //Compare entered username and password with predefined values
17    if(strcmp(predefinedUsername,enteredUsername)== 0&& strcmp(predefinedPassword
18        ,enteredPassword)==0) {
19        printf("Login successfull!\n");
20    }else{
21        printf("Login failed. Please check your username and password.\n");
22    }
23    return 0;
24 }
```

The output window shows the results of running the program with input "sahil7320" and "sahraj870". It indicates a failure because the provided credentials do not match the predefined ones.

```
/tmp/UQnu33VgGF.o
Sahil-2316912023
Enter username:sahil7320
Enter password:sahraj870
Login failed. Please check your username and password.
```

17. WAP to input the positive number from the user to perform the left shift operator.

The screenshot shows a web-based C compiler interface. The code editor contains a C program named main.c. The code prompts the user for a positive integer and a shift value, then performs a left shift operation and prints the result. The output window shows the execution of the program, including the user's input and the resulting output.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     int a,shift;
7     printf("Enter a positive number:\n");
8     scanf("%d",&a);
9     if(a<0)
10    {
11         printf("Please enter a positive number.\n");
12         return 1; //Exit with an error code
13     }
14     //Input the number of positions to shift
15     printf("Enter the number of positions to left shift:\n");
16     scanf("%d",&shift);
17     //Perform the left shift operation
18     int result=a << shift;
19     //Display the result
20     printf("Result of left shift:%d\n",result);
21
22     return 0;
23 }
```

Output
/tmp/nSKJCYGfU7.o Sahil-2316912023 Enter a positive number: 9 Enter the number of positions to left shift: 6 Result of left shift:576

18. WAP to input the positive number from the user to perform the right shift operator.

The screenshot shows a web-based C compiler interface. The code editor contains a C program named main.c. The code prompts the user for a positive integer and a shift value, then performs a right shift operation and prints the result. The output window shows the execution of the program, including the user's input and the resulting output.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     unsigned int a,shift;
7     printf("Enter a positive number:\n");
8     scanf("%u",&a);
9     //Input the number of positions to shift
10    printf("Enter the number of positions to right shift:\n");
11    scanf("%u",&shift);
12    //Perform the right shift operation
13    unsigned int result=a >> shift;
14    //Display the result
15    printf("Result of right shift:%u\n",result);
16
17    return 0;
18 }
```

Output
/tmp/nSKJCYGfU7.o Sahil-2316912023 Enter a positive number: 20 Enter the number of positions to right shift: 2 Result of right shift:5

19. WAP to perform the pre increment and pre decrement operator on two integers and print both original value and updated value.

The screenshot shows the Programiz C Online Compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     int a=10;
7     int b=4;
8     printf("Original values:a=%d,b=%d\n",a,b);
9     ++a;
10    --b;
11    printf("Updated values:a=%d,b=%d\n",a,b);
12
13    return 0;
14 }
```

The output window shows the results of the program execution:

```
/tmp/nSKJCYGfU7.o
Sahil-2316912023
Original values:a=10,b=4
Updated values:a=11,b=3
```

20. WAP to perform the post increment and post decrement operator on two integers and print both original and updated values.

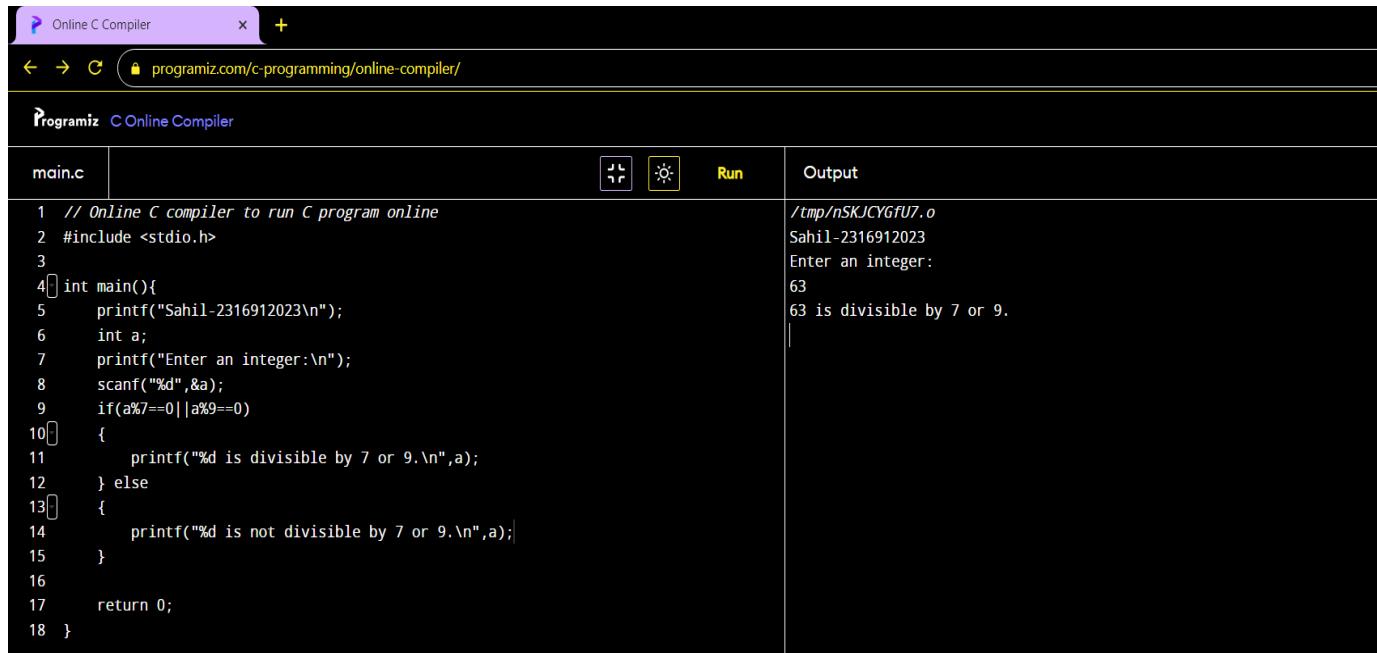
The screenshot shows the Programiz C Online Compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     int a=4;
7     int b=10;
8     printf("Original values:a=%d,b=%d\n",a,b);
9     int post_inc_result_a=a++;
10    int post_dec_result_b=b--;
11    printf("After post-increment and post-decrement:a=%d,b=%d\n",a,b);
12    printf("Post-increment result for a:%d\n",post_inc_result_a);
13    printf("Post-decrement result for b:%d\n",post_dec_result_b);
14
15    return 0;
16 }
```

The output window shows the results of the program execution:

```
/tmp/nSKJCYGfU7.o
Sahil-2316912023
Original values:a=4,b=10
After post-increment and post-decrement:a=5,b=9
Post-increment result for a:5
Post-decrement result for b:10
```

21. WAP for an integer number and to check whether it is divisible by 9 or 7 using OR Logical operator.



The screenshot shows the Programiz Online C Compiler interface. The code in main.c checks if an integer is divisible by 7 or 9 using the OR logical operator. The output window shows the program's execution and the result for the input 63.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     int a;
7     printf("Enter an integer:\n");
8     scanf("%d",&a);
9     if(a%7==0||a%9==0)
10    {
11         printf("%d is divisible by 7 or 9.\n",a);
12     } else
13    {
14         printf("%d is not divisible by 7 or 9.\n",a);
15     }
16
17     return 0;
18 }
```

Output
/tmp/nSKJCYGfU7.o Sahil-2316912023 Enter an integer: 63 63 is divisible by 7 or 9.

22. WAP to identify gender in single character and print full gender.



The screenshot shows the Programiz Online C Compiler interface. The code in main.c identifies the gender (Male or Female) based on a single character input. The output window shows the program's execution and the result for the input 'm'.

```
1 // Online C compiler to run C program online
2 #include<stdio.h>
3 #include<ctype.h>
4 int main()
5 {
6     printf("Sahil-2316912023\n");
7     char gender;
8     printf("Enter a single character(M or m for Male,F or f for Female):");
9     scanf("%c",&gender);
10    if(tolower(gender)=='m'){
11        printf("Male\n");
12    } else if(tolower(gender)=='f'){
13        printf("Female\n");
14    } else {
15        printf("Unknown gender\n");
16    }
17
18    return 0;
19 }
```

Output
/tmp/ltyoTHU5ru.o Sahil-2316912023 Enter a single character(M or m for Male,F or f for Female):m Male

23. WAP to print all natural numbers in reverse (from n to 1).

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include<stdio.h>
3 #include<ctype.h>
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n;
7     printf("Enter a positive integer:\n");
8     scanf("%d",&n);
9     if(n<=0){
10         printf("Please enter a positive integer.\n");
11         return 1;
12     }
13     printf("Natural numbers from %d to 1 in reverse order:\n",n);
14     for(int i=n;i>=1;i--){
15         printf("%d\n",i);
16     }
17
18     return 0;
19 }
```

The output window shows the execution results:

```
/tmp/ItyoTHU5ru.o
Sahil-2316912023
Enter a positive integer:
10
Natural numbers from 10 to 1 in reverse order:
10
9
8
7
6
5
4
3
2
1
```

24. WAP to print all alphabets from a to z.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     char alphabet;
7     for(alphabet='a';alphabet<='z';alphabet++)
8     {
9         printf("%c\n",alphabet);
10    }
11    printf("\n");
12
13
14    return 0;
15 }
```

The output window shows the execution results:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
v
w
x
```

25. WAP to print all natural numbers from 1 to n.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n;
7     printf("Enter the value of n:\n");
8     scanf("%d",&n);
9     if(n<=0){
10         printf("Please enter a positive number.\n");
11    }else {
12        printf("Natural numbers from 1 to %d are:\n",n);
13        for(int i=1;i<=n;i++){
14            printf("%d\n",i);
15        }
16    }
17
18    return 0;
19 }
```

The output window shows the following interaction and result:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
Enter the value of n:
20
Natural numbers from 1 to 20 are:
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```

26. WAP to print all even numbers between 1 to 100.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int i;
7     printf("Even numbers between 1 to 100 are:\n");
8     for(i=2;i<=100;i+=2){
9         printf("%d\n",i);
10    }
11
12    return 0;
13 }
```

The output window shows the following even numbers:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
Even numbers between 1 to 100 are:
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
```

27. WAP to print all odd numbers between 1 to 100.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int i;
7     printf("Odd numbers between 1 to 100 are:\n");
8     for (i=1;i<=100;i++){
9         if(i%2!=0){
10             printf("%d\n",i);
11         }
12     }
13
14     return 0;
15 }
```

The output window shows the generated assembly code and the resulting output:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
Odd numbers between 1 to 100 are:
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
43
45
```

28. WAP to find sum of all natural numbers between 1 to n.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,sum=0;
7     printf("Enter a positive number:\n");
8     scanf("%d",&n);
9     if(n<1){
10         printf("Please enter a positive number.\n");
11     } else {
12         for(int i=1;i<=n;i++){
13             sum+=i;
14         }
15         printf("The sum of natural numbers from1 to %d is:%d\n",n,sum);
16     }
17
18     return 0;
19 }
```

The output window shows the generated assembly code and the resulting output. It prompts for input and displays the result:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
Enter a positive number:
76
The sum of natural numbers from1 to 76 is:2926
```

29. WAP to find sum of all even numbers between 1 to n.

The screenshot shows a web-based C compiler interface. The title bar says "Banjara - YouTube" and "Online C Compiler". The URL in the address bar is "programiz.com/c-programming/online-compiler/". The main area has tabs for "Programiz C Online Compiler" and "main.c". The code in "main.c" is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,sum=0;
7     printf("Enter a positive number:\n");
8     scanf("%d",&n);
9     for(int i=2;i<=n;i+=2){
10         sum+=i;
11     }
12     printf("The sum of natural numbers from1 to %d is:%d\n",n,sum);
13
14     return 0;
15 }
```

The output window shows the results of running the program. It starts with the file path "/tmp/7xA9ct9III.o", followed by "Sahil-2316912023", then prompts "Enter a positive number:", receives "48", and finally outputs "The sum of natural numbers from1 to 48 is:600".

30. WAP to find sum of all odd integers between 1 to n.

The screenshot shows a web-based C compiler interface. The title bar says "Banjara - YouTube" and "Online C Compiler". The URL in the address bar is "programiz.com/c-programming/online-compiler/". The main area has tabs for "Programiz C Online Compiler" and "main.c". The code in "main.c" is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,sum=0;
7     printf("Enter a positive number:\n");
8     scanf("%d",&n);
9     for(int i=1;i<=n;i++){
10         if(i%2!=0){
11             sum+=i;
12         }
13     }
14     printf("The sum of natural numbers from1 to %d is:%d\n",n,sum);
15
16     return 0;
17 }
```

The output window shows the results of running the program. It starts with the file path "/tmp/7xA9ct9III.o", followed by "Sahil-2316912023", then prompts "Enter a positive number:", receives "65", and finally outputs "The sum of natural numbers from1 to 65 is:1089".

31. WAP to print multiplication table of any number.

The screenshot shows a web-based C compiler interface. The code in main.c prints a multiplication table for the number 8. The output window shows the printed table from 8*1 to 8*10.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,i;
7     printf("Enter a number:\n");
8     scanf("%d",&n);
9     printf("Multiplication table for %d\n",n);
10    for(i=1;i<=10;i++) {
11        printf("%d*d=%d\n",n,i,n*i);
12    }
13
14    return 0;
15 }
```

main.c	Run	Output
		/tmp/7xA9ct9III.o Sahil-2316912023 Enter a number: 8 Multiplication table for 8 8*1=8 8*2=16 8*3=24 8*4=32 8*5=40 8*6=48 8*7=56 8*8=64 8*9=72 8*10=80

32. WAP to count number of digits in a number.

The screenshot shows a web-based C compiler interface. The code in main.c counts the number of digits in the number 76543098. The output window shows the input number and the count of digits.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,count=0;
7     printf("Enter a number:\n");
8     scanf("%d",&n);
9     while(n!=0){
10        n=n/10;
11        count++;
12    }
13    printf("Number of digits:%d\n",count);
14
15    return 0;
16 }
```

main.c	Run	Output
		/tmp/7xA9ct9III.o Sahil-2316912023 Enter a number: 76543098 Number of digits:8

33. WAP to find first and last digit of a number.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,firstdigit,lastdigit;
7     printf("Enter a number:\n");
8     scanf("%d",&n);
9     lastdigit=n%10;
10    while(n>=10){
11        n/=10;
12    }
13    firstdigit=n;
14    printf("First digit:%d\n",firstdigit);
15    printf("Last digit:%d\n",lastdigit);
16
17    return 0;
18 }
```

The output window shows the result of running the program with the input 12765498:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
Enter a number:
12765498
First digit:1
Last digit:8
```

34. WAP to find sum of first and last digit of a number.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,firstdigit,lastdigit,sum;
7     printf("Enter a number:\n");
8     scanf("%d",&n);
9     lastdigit=n%10;
10    while(n>=10){
11        n/=10;
12    }
13    firstdigit=n;
14    sum=firstdigit+lastdigit;
15    printf("The sum of first and last digit of a number is:%d\n",sum);
16
17    return 0;
18 }
```

The output window shows the result of running the program with the input 321567895:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
Enter a number:
321567895
The sum of first and last digit of a number is:8
```

35. WAP to swap first and last digits of a number.

The screenshot shows a Windows desktop environment with a taskbar at the bottom. The taskbar icons include Start, Search, Task View, File Explorer, Edge, File Manager, and others. The system tray shows the date as 11-10-2023 and the time as 20:43. The main window is titled "Online C Compiler" and displays a C program named "main.c". The code swaps the first and last digits of a given number. When run, it prints the original number, asks for input, and then outputs the number with swapped digits. The output window shows the path to the compiled file, the user's name, the prompt "Enter a number:", the input "6547", and the result "Number after swapping first and last digits:77456".

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,originalnum,firstdigit,lastdigit,temp,swappednum=0;
7     printf("Enter a number:\n");
8     scanf("%d",&n);
9     originalnum=n;
10    lastdigit=n%10;
11    n/=10;
12    while(n>=10){
13        n/=10;
14    }
15    firstdigit=n;
16    temp=lastdigit;
17    lastdigit=firstdigit;
18    firstdigit=temp;
19    swappednum=firstdigit;
20    n=originalnum;
21    while(n>=10){
22        swappednum=(swappednum*10)+(n%10);
23        n/=10;
24    }
25    swappednum=(swappednum*10)+lastdigit;
26    printf("Number after swapping first and last digits:%d\n",swappednum);
```

36. WAP to calculate sum of digits of a number.

The screenshot shows a Windows desktop environment with a taskbar at the bottom. The taskbar icons include Start, Search, Task View, File Explorer, Edge, File Manager, and others. The system tray shows the date as 11-10-2023 and the time as 20:43. The main window is titled "Online C Compiler" and displays a C program named "main.c". The code calculates the sum of the digits of a given number. When run, it prints the original number, asks for input, and then outputs the sum of the digits. The output window shows the path to the compiled file, the user's name, the prompt "Enter a number:", the input "432546", and the result "The sum of the digits:24".

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,sum=0,digit;
7     printf("Enter a number:\n");
8     scanf("%d",&n);
9     while(n>0){
10         digit=n%10;
11         sum+=digit;
12         n/=10;
13     }
14     printf("The sum of the digits:%d\n",sum);
15
16     return 0;
17 }
```

37. WAP to calculate product of digits of a number.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,product=1,digit;
7     printf("Enter a number:\n");
8     scanf("%d",&n);
9     while(n>0){
10         digit=n%10;
11         product*=digit;
12         n/=10;
13     }
14     printf("The product of the digits:%d\n",product);
15
16     return 0;
17 }
```

The output window shows the compiler's message and the user's input followed by the program's output:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
Enter a number:
654
The product of the digits:120
```

38. WAP to enter a number and print its reverse.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,reverse=0,remainder;
7     printf("Enter a number:\n");
8     scanf("%d",&n);
9     while(n!=0){
10         remainder=n%10;
11         reverse=reverse*10+remainder;
12         n/=10;
13     }
14     printf("Reverse of the number:%d\n",reverse);
15
16     return 0;
17 }
```

The output window shows the compiler's message and the user's input followed by the program's output:

```
/tmp/7xA9ct9III.o
Sahil-2316912023
Enter a number:
5634
Reverse of the number:4365
```

39. WAP to check whether a number is palindrome or not.

The screenshot shows the Programiz Online C Compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,reversedn=0,originaln,remainder;
7     printf("Enter an integer:\n");
8     scanf("%d",&n);
9     originaln=n;
10    while(n!=0){
11        remainder=n%10;
12        reversedn=reversedn*10+remainder;
13        n/=10;
14    }
15    if(originaln==reversedn)
16        printf("%d is a palindrome.\n");
17    else
18        printf("%d is not a palindrome.\n");
19
20    return 0;
21 }
```

The output window shows the result of running the program with the input '10':

```
/tmp/h00X6qYIzy.o
Sahil-2316912023
Enter an integer:
10
0 is not a palindrome.
```

40. WAP to find frequency of each digit in a given number.

The screenshot shows the Programiz Online C Compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n;
7     printf("Enter an integer:\n");
8     scanf("%d",&n);
9     int digitcount[10]={0};
10    while(n!=0){
11        int digit=n%10;
12        digitcount[digit]++;
13        n/=10;
14    }
15    printf("Digit frequencies:\n");
16    for(int i=0;i<10;i++){
17        if(digitcount[i]>0){
18            printf("Digit %d:%d times\n",i,digitcount[i]);
19        }
20    }
21
22
23    return 0;
24 }
```

The output window shows the result of running the program with the input '776695':

```
/tmp/h00X6qYIzy.o
Sahil-2316912023
Enter an integer:
776695
Digit frequencies:
Digit 5:1 times
Digit 6:2 times
Digit 7:2 times
Digit 9:1 times
```

41. WAP to enter a number and print it in words.

The screenshot shows an online C compiler interface. The code in the editor is as follows:

```
main.c
1 //include <stdio.h>
2 int main() {
3     printf("Sahil-2316912023\n");
4     int n;
5     printf("Enter a number(1to999):\n");
6     scanf("%d",&n);
7     if(n<1||n>999){
8         printf("Number out of range.Please enter a number between 1 and 999.\n");
9     }else {
10        printwords(n);
11    }
12
13
14
15    return 0;
16 }
17 void printwords(int n){
18     char*units[]={"","one","two","three","four","five","six","seven","eight"
19     ,"nine"};
20     char*teens[]={"ten","eleven","twelve","thirteen","fourteen","fifteen","sixteen"
21     ,"seventeen","eighteen","nineteen"};
22     char*tens[]={","","twenty","thirty","forty","fifty","sixty","seventy",
23     ,"eighty"
24     ,"ninety"};
25     if(n==100){
26         printf("%sHundred",units[n/100]);
27     } else if (n>=10&&n<20){
28         printf("%s\n",teens[n-10]);
29     } else {
```

The output window shows the compiled file and the results of running the program with input 879:

```
/tmp/QKKGAD8844.o
Sahil-2316912023
Enter a number(1to999):
879
eightHundredseventynine
```

42. WAP to print all ASCII character with their values.

The screenshot shows an online C compiler interface. The code in the editor is as follows:

```
main.c
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int i;
7     for(i=0;i<127;i++){
8         printf("ASCII value %d is character:%c\n",i,i);
9     }
10
11    return 0;
12 }
```

The output window shows the results of running the program, printing ASCII values from 0 to 21:

```
/tmp/QKKGAD8844.o
Sahil-2316912023
ASCII value 0 is character:-
ASCII value 1 is character:-
ASCII value 2 is character:-
ASCII value 3 is character:-
ASCII value 4 is character:-
ASCII value 5 is character:-
ASCII value 6 is character:-
ASCII value 7 is character:-
ASCII value 8 is character:-
ASCII value 9 is character:-
ASCII value 10 is character:-
ASCII value 11 is character:-
ASCII value 12 is character:-
ASCII value 13 is character:-
ASCII value 14 is character:-
ASCII value 15 is character:-
ASCII value 16 is character:-
ASCII value 17 is character:-
ASCII value 18 is character:-
ASCII value 19 is character:-
ASCII value 20 is character:-
ASCII value 21 is character:-
```

43. WAP to find power of a number using FOR Loop.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     double base,exponent,result=1;
7     printf("Enter the base:\n");
8     scanf("%lf",&base);
9     printf("Enter the exponent:\n");
10    scanf("%lf",&exponent);
11    for(int i=1;i<=exponent;i++){
12        result*=base;
13    }
14    printf("%.2lf^%.2lf=%lf\n",base,exponent,result);
15
16    return 0;
17 }
```

The output window shows the results of running the program with base 78 and exponent 8:

```
/tmp/QKKGAD8844.o
Sahil-2316912023
Enter the base:
78
Enter the exponent:
8
78.00^8.00=1370114370683136.00
```

44. WAP to find all factors of a number.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n;
7     printf("Enter the number:\n");
8     scanf("%d",&n);
9     printf("Factors of %d are:\n",n);
10    for(int i=1;i<=n;i++){
11        if(n%i==0){
12            printf("%d\n",i);
13        }
14    }
15
16    return 0;
17 }
```

The output window shows the factors of 70:

```
/tmp/QKKGAD8844.o
Sahil-2316912023
Enter the number:
70
Factors of 70 are:
1
2
5
7
10
14
35
70
```

45. WAP to calculate factorial of a number.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n;
7     unsigned long long factorial=1;
8     printf("Enter a positive number:\n");
9     scanf("%d",&n);
10    if(n<0){
11        printf("Factorial is not defined for negative numbers.\n");
12    }else {
13        for(int i=1;i<=n;i++){
14            factorial*=i;
15        }
16        printf("Factorial of %d=%llu\n",n,factorial);
17    }
18
19    return 0;
20 }
```

The output window shows the following interaction:

```
/tmp/QKKGAD8844.o
Sahil-2316912023
Enter a positive number:
40
Factorial of 40=18376134811363311616
```

46. WAP to find HCF (GCD) of two numbers.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int findGCD(int a,int b) {
5     if(b==0){
6         return a;
7     }else {
8         return findGCD(b,a%b);
9     }
10 }
11 int main(){
12     printf("Sahil-2316912023\n");
13     int num1,num2;
14     printf("Enter the first number:");
15     scanf("%d",&num1);
16     printf("Enter the second number:");
17     scanf("%d",&num2);
18     int gcd=findGCD(num1,num2);
19     printf("The GCD of %d and %d is %d\n",num1,num2,gcd);
20
21     return 0;
22 }
```

The output window shows the following interaction:

```
/tmp/0JV5BeLnVD.o
Sahil-2316912023
Enter the first number:65
Enter the second number:13
The GCD of 65 and 13 is 13
```

47. WAP to find LCM of two numbers.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int findGCD(int a,int b) {
5     if(b==0){
6         return a;
7     }else {
8         return findGCD(b,a%b);
9     }
10 }
11 int findLCM(int a,int b){
12     int gcd=findGCD(a,b);
13     return(a*b)/gcd;
14 }
15 int main(){
16     printf("Sahil-2316912023\n");
17     int num1,num2;
18     printf("Enter the first number:");
19     scanf("%d",&num1);
20     printf("Enter the second number:");
21     scanf("%d",&num2);
22     int lcm=findLCM(num1,num2);
23     printf("The LCM of %d and %d is %d\n",num1,num2,lcm);
24
25     return 0;
26 }
```

The output window shows the results of running the program:

```
/tmp/0JV5BeLnVD.o
Sahil-2316912023
Enter the first number:14
Enter the second number:7
The LCM of 14 and 7 is 14
```

48. WAP to check whether the number is prime number or not.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int isPrime(int num) {
5     if(num<=1){
6         return 0;
7     }
8     for(int i=2;i*i<=num;i++){
9         if(num%i==0){
10             return 0;
11         }
12     }
13     return 1;
14 }
15 int main(){
16     printf("Sahil-2316912023\n");
17     int num;
18     printf("Enter a number:\n");
19     scanf("%d",&num);
20     if(isPrime(num)){
21         printf("%d is a prime number.\n",num);
22     } else {
23         printf("%d is not a prime number.\n",num);
24     }
25
26     return 0;
27 }
```

The output window shows the results of running the program:

```
/tmp/0JV5BeLnVD.o
Sahil-2316912023
Enter a number:
7
7 is a prime number.
```

49. WAP to print all prime numbers between 1 to n.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int isPrime(int num) {
5     if(num<=1){
6         return 0;
7     }
8     for(int i=2;i*i<=num;i++){
9         if(num%i==0){
10             return 0;
11         }
12     }
13     return 1;
14 }
15 int main(){
16     printf("Sahil-2316912023\n");
17     int n;
18     printf("Enter a positive integer:\n");
19     scanf("%d",&n);
20     printf("Prime numbers between 1 and %d are: ",n);
21     for(int i=2;i<=n;i++){
22         if(isPrime(i)){
23             printf("%d\n",i);
24         }
25     }
26 }
```

The output window shows the results of running the program with input 80:

```
/tmp/OJV5BeLnVD.o
Sahil-2316912023
Enter a positive integer:
80
Prime numbers between 1 and 80 are:2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
53
59
61
67
71
73
79
```

50. WAP to find sum of all prime numbers between 1 to n.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 int isPrime(int num) {
2     if(num<=1){
3         return 0;
4     }
5     for(int i=2;i*i<=num;i++){
6         if(num%i==0){
7             return 0;
8         }
9     }
10    return 1;
11 }
12 int main(){
13     printf("Sahil-2316912023\n");
14     int n;
15     printf("Enter a positive integer:\n");
16     scanf("%d",&n);
17     int sum=0;
18     for(int i=2;i<=n;i++){
19         if(isPrime(i)){
20             sum+=i;
21         }
22     }
23     printf("The sum of prime numbers between 1 and %d is:%d\n",n,sum);
24 }
25 }
```

The output window shows the results of running the program with input 75:

```
/tmp/OJV5BeLnVD.o
Sahil-2316912023
Enter a positive integer:
75
The sum of prime numbers between 1 and 75 is:712
```

51. WAP to find all prime factors of a number.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 void primeFactors(int n) {
5     while(n%2==0){
6         printf("%d",2);
7         n=n/2;
8     }
9     for(int i=3;i<=n;i=i+2){
10        while(n%i==0){
11            printf("%d",i);
12            n=n/i;
13        }
14    }
15    if(n>2){
16        printf("%d",n);
17    }
18 }
19 int main(){
20     printf("Sahil-2316912023\n");
21     int n;
22     printf("Enter a number:\n");
23     scanf("%d",&n);
24     printf("Prime factors of %d are:",n);
25     primeFactors(n);
26 }
```

The output window shows the results of running the program with input 65:

```
/tmp/0JV5BeLnVD.o
Sahil-2316912023
Enter a number:
65
Prime factors of 65
are:513
```

52. WAP to check whether the number is Armstrong number or not.

The screenshot shows an online C compiler interface. The code in the editor is:

```
3 #include <math.h>
4 int isArmstrong(int num) {
5     int originalNum, remainder, result=0, n=0;
6     originalNum=num;
7     while(originalNum!=0){
8         originalNum/=10;
9         ++n;
10    }
11    originalNum=num;
12    while(originalNum!=0){
13        remainder=originalNum%10;
14        result+=pow(remainder,n);
15        originalNum/=10;
16    }
17    if(result==num)
18        return 1;
19    else
20        return 0;
21 }
22 int main(){
23     printf("Sahil-2316912023\n");
24     int num;
25     printf("Enter a number:");
26     scanf("%d",&num);
27     if(isArmstrong(num))
28         printf("%d is an Armstrong number:\n");
29 }
```

The output window shows the results of running the program with input 153:

```
/tmp/SbZw1NF5g5.o
Sahil-2316912023
Enter a number:153
0 is an Armstrong number:
```

53. WAP to print all Armstrong numbers between 1 to n.

The screenshot shows an online C compiler interface. The code in the editor is:

```
main.c
9     ++n;
10    }
11    originalNum=num;
12    while(originalNum!=0){
13        remainder=originalNum%10;
14        result+=pow(remainder,n);
15        originalNum/=10;
16    }
17    if(result==num)
18        return 1;
19    else
20        return 0;
21 }
22 int main(){
23     printf("Sahil-2316912023\n");
24     int num;
25     printf("Enter a number:");
26     scanf("%d",&num);
27     printf("Armstrong numbers between 1 and %d are:\n",num);
28     for(int i=1;i<=num;i++){
29         if(isArmstrong(i)){
30             printf("%d\n",i);
31         }
32     }
33     return 0;
34 }
```

The output window shows the results of running the program with input 100:

```
/tmp/5bZw1NF5g5.o
Sahil-2316912023
Enter a number:100
Armstrong numbers between 1 and 100 are:
1
2
3
4
5
6
7
8
9
```

54. WAP to check whether a number is perfect number or not.

The screenshot shows an online C compiler interface. The code in the editor is:

```
main.c
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int isPerfect(int num) {
5     int sum=0;
6     for(int i=1;i<=num/2;i++){
7         if(num%i==0){
8             sum+=i;
9         }
10    }
11    return sum==num;
12 }
13 int main(){
14     printf("Sahil-2316912023\n");
15     int number;
16     printf("Enter a number:");
17     scanf("%d",&number);
18     if(isPerfect(number)){
19         printf("%d is a perfect number.\n",number);
20     }else {
21         printf("%d is not a perfect number.\n",number);
22     }
23     return 0;
24 }
```

The output window shows the results of running the program with input 65:

```
/tmp/5bZw1NF5g5.o
Sahil-2316912023
Enter a number:65
65 is not a perfect number.
```

55. WAP to print all perfect numbers between 1 to n.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int isPerfect(int num) {
5     int sum=1;
6     for(int i=2;i*i<=num;i++){
7         if(num%i==0){
8             if(i*i!=num){
9                 sum=sum+i+num/i;
10            }else {
11                sum=sum+i;
12            }
13        }
14    }
15    if(sum==num&&num!=1){
16        return 1;
17    }
18    return 0;
19 }
20 int main(){
21     printf("Sahil-2316912023\n");
22     int n;
23     printf("Enter the value of n:");
24     scanf("%d",&n);
25     printf("Perfect numbers between 1 and %d are:",n);
26     for(int i=1;i<=n;i++){
```

The output window shows the results of running the program with n=100:

```
/tmp/5bZw1NF5g5.o
Sahil-2316912023
Enter the value of n:100
Perfect numbers between 1 and 100 are:6
28
```

56. WAP to check whether a number is Strong number or not.

The screenshot shows an online C compiler interface. The code in the editor is:

```
5     int fact=1;
6     for(int i=1;i<=n;i++){
7         fact*=i;
8     }
9     return fact;
10 }
11 int isStrongNumber(int num){
12     int originalNum=num;
13     int sum=0;
14     while(num>0){
15         int digit=num%10;
16         sum+=factorial(digit);
17         num/=10;
18     }
19     return(sum==originalNum);
20 }
21 int main(){
22     printf("Sahil-2316912023\n");
23     int num;
24     printf("Enter a number:\n");
25     scanf("%d",&num);
26     if(isStrongNumber(num)){
27         printf("%d is a strong number.\n",num);
28     }else {
29         printf("%d is not a strong number.\n",num);
30     }
```

The output window shows the results of running the program with a user input of 145:

```
/tmp/5bZw1NF5g5.o
Sahil-2316912023
Enter a number:
145
145 is a strong number.
```

57. WAP to print all strong numbers between 1 to n.

The screenshot shows an online C compiler interface. The code in the editor is as follows:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int factorial(int num){
5     if(num==0||num==1){
6         return 1;
7     } else {
8         return num*factorial(num-1);
9     }
10
11 }
12 int isStrongNumber(int num){
13     int originalNum=num;
14     int sum=0;
15     while(num>0){
16         int digit=num%10;
17         sum+=factorial(digit);
18         num/=10;
19     }
20     return(sum==originalNum);
21 }
22 int main(){
23     printf("Sahil-2316912023\n");
24     int n;
25     printf("Enter the value of n:");
26     scanf("%d",&n);
```

The output window shows the results of running the program with n=200:

```
/tmp/5bZw1NF5g5.o
Sahil-2316912023
Enter the value of n:200
Strong numbers between 1 and 200 are:
1
2
145
```

58. WAP to print Fibonacci series up to n terms.

The screenshot shows an online C compiler interface. The code in the editor is as follows:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     int n,first=0,second=1,next,i;
7     printf("Enter the number of terms:");
8     scanf("%d",&n);
9     printf("Fibonacci series up to %d terms:\n",n);
10    for(i=0;i<n;i++){
11        if(i<=1)
12            next=i;
13        else{
14            next=first+second;
15            first=second;
16            second=next;
17        }
18        printf("%d\n",next);
19    }
20    return 0;
21 }
```

The output window shows the results of running the program with n=10:

```
/tmp/5bZw1NF5g5.o
Sahil-2316912023
Enter the number of terms:10
Fibonacci series up to 10 terms:
0
1
1
2
3
5
8
13
21
34
```

59. WAP to find one's complement of a binary number.

The screenshot shows an online C compiler interface. The code in main.c is as follows:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     char binaryNumber[32];
7     char onesComplement[32];
8     int i;
9     printf("Enter a binary number:");
10    scanf("%s",&binaryNumber);
11    for(i=0;binaryNumber[i]!='\0';i++){
12        if(binaryNumber[i]=='0'){
13            onesComplement[i]='1';
14        }else if(binaryNumber[i]=='1'){
15            onesComplement[i]='0';
16        }else{
17            printf("Invalid binary number.\n");
18            return 1;
19        }
20    }
21    onesComplement[i]='\0';
22    printf("One's complement:%s\n",onesComplement);
23    return 0;
24 }
```

The output window shows the following results:

```
/tmp/5bZw1NF5g5.o
Sahil-2316912023
Enter a binary number:1001
One's complement:0110
```

60. WAP to find two's complement of a binary number.

The screenshot shows an online C compiler interface. The code in main.c is as follows:

```
11 | for(i=0; i<SIZE; i++)
12 | {
13 |     if(binary[i] == '1')
14 |     {
15 |         onesComp[i] = '0';
16 |     }
17 |     else if(binary[i] == '0')
18 |     {
19 |         onesComp[i] = '1';
20 |     }
21 |
22 onesComp[SIZE] = '\0';
23 for(i=SIZE-1; i>=0; i--)
24 |
25     if(onesComp[i] == '1' && carry == 1)
26     {
27         twosComp[i] = '0';
28     }
29     else if(onesComp[i] == '0' && carry == 1)
30     {
31         twosComp[i] = '1';
32         carry = 0;
33     }
34     else
35     {
36         twosComp[i] = onesComp[i];
37     }
38 }
```

The output window shows the following results:

```
/tmp/2W9AJ1P14r.o
Sahil-2316912023
Enter 8 bit binary value: 10110100
Original binary = 10110100
Ones complement = 01001011
Twos complement = 01001100
```

61. WAP to convert binary to octal number system.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include <math.h>
4 int main()
5 {
6     printf("Sahil-2316912023\n");
7     long long binarynumber;
8     int octalnumber=0,decimalnumber=0,i=0;
9     printf("Enter a binary number: ");
10    scanf("%lld",&binarynumber);
11    while(binarynumber!=0){
12        decimalnumber+=(binarynumber%10)*pow(2,i);++i;
13        binarynumber/=10;
14    }
15    i=1;
16    while(decimalnumber!=0){
17        octalnumber+=(decimalnumber%8)*i;
18        decimalnumber/=8;
19        i*=10;
20    }
21    printf("The octal equivalent is:%d\n",octalnumber);
22
23    return 0;
24 }
```

The output window shows the results of running the program with input 1001:

```
/tmp/2W9AJ1P14r.o
Sahil-2316912023
Enter a binary number: 1001
The octal equivalent is:11
```

62. WAP to convert binary to decimal number system.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include <math.h>
4 int main()
5 {
6     printf("Sahil-2316912023\n");
7     long long binarynumber;
8     int decimalnumber=0,i=0,remainder;
9     printf("Enter a binary number: ");
10    scanf("%lld",&binarynumber);
11    while(binarynumber!=0){
12        remainder=binarynumber%10;
13        decimalnumber+=remainder*pow(2,i);
14        binarynumber/=10;
15        i++;
16    }
17    printf("Decimal equivalent:%d\n",decimalnumber);
18
19    return 0;
20 }
```

The output window shows the results of running the program with input 1001:

```
/tmp/2W9AJ1P14r.o
Sahil-2316912023
Enter a binary number: 1001
Decimal equivalent:9
```

63. WAP to convert binary to hexadecimal number system.

The screenshot shows an online C compiler interface. The code in the editor is:

```
5 int len=strlen(binary);
6 int rem=len%4;
7 if(rem!=0){
8     for(int i=0;i<4-rem;i++){
9         memmove(binary+i,binary,len+1);
10        binary[0]='0';
11        len++;
12    }
13 }
14 int hexdigit;
15 char*hex=malloc((len/4)+1);
16 int index=0;
17 for(int i=0;i<len;i+=4){
18     hexdigit=0;
19     for(int j=0;j<4;j++){
20         hexdigit=hexdigit*2+(binary[i+j]-'0');
21     }
22     if(hexdigit<=9){
23         hex[index]=hexdigit+'0';
24     }else {
25         hex[index]=hexdigit-10+'A';
26     }
27     index++;
28 }
29 hex[index]='\0';
30 return hex;
```

The output window shows the results of running the program:

```
/tmp/2W9AJ1P14r.o
Sahil-2316912023
Enter a binary number: 1111
Hexadecimal equivalent:F
```

64. WAP to convert octal to binary number system.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 void octaltobinary(char octaldigit){
5     int binary[3]={0,0,0};
6     int octal=octaldigit-'0';
7     for(int i=2;octal>0;i--){
8         binary[i]=octal%2;
9         octal/=2;
10    }
11    for(int i=0;i<3;i++){
12        printf("%d",binary[i]);
13    }
14 }
15 int main(){
16     printf("Sahil-2316912023\n");
17     char octalnumber[10];
18     printf("Enter an octal number: ");
19     scanf("%s",octalnumber);
20     printf("Binary equivalent: ");
21     for(int i=0;octalnumber[i]!='\0';i++){
22         octaltobinary(octalnumber[i]);
23     }
24     return 0;
25 }
```

The output window shows the results of running the program:

```
/tmp/2W9AJ1P14r.o
Sahil-2316912023
Enter an octal number: 7
Binary equivalent: 111
```

65. WAP to convert octal to decimal number system.

The screenshot shows the Programiz C Online Compiler interface. The code in main.c converts an octal number to a decimal number. It includes a header file inclusion, variable declarations, a loop to read the octal number, and a printf statement to output the decimal equivalent. The output window shows the compiled file path, the user's name, and the result of running the program with the input 87, which outputs 71.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     int octalnumber,decimalnumber=0,base=1;
7     printf("Enter an octal number: ");
8     scanf("%d",&octalnumber);
9     while(octalnumber>0){
10         int lastdigit=octalnumber%10;
11         decimalnumber+=lastdigit*base;
12         octalnumber/=10;
13         base*=8;
14     }
15     printf("The decimal equivalent is:%d\n",decimalnumber);
16
17     return 0;
18 }
```

66. WAP to convert octal to hexadecimal number system.

The screenshot shows the Programiz C Online Compiler interface. The code in main.c converts an octal number to a hexadecimal string. It uses a long long data type for the octal number and a character array for the hex representation. The output window shows the compiled file path, the user's name, and the result of running the program with the input 86, which outputs the hexadecimal equivalent 46.

```
4 int main(){
5     printf("Sahil-2316912023\n");
6     long long octalnumber,decimalnumber=0;
7     int octaldigit,hexnumber[50],i=0,j;
8     printf("Enter an octal number: ");
9     scanf("%lld",&octalnumber);
10    while(octalnumber!=0){
11        octaldigit=octalnumber%10;
12        decimalnumber+=octaldigit*pow(8,i);
13        i++;
14        octalnumber/=10;
15    }
16    i=0;
17    while(decimalnumber!=0){
18        int remainder=decimalnumber%16;
19        if(remainder<10){
20            hexnumber[i]=remainder+48;
21        }else{
22            hexnumber[i]=remainder+55;
23        }
24        i++;
25        decimalnumber/=16;
26    }
27    printf("Hexadecimal equivalent: ");
28    for(j=i-1;j>=0;j--){
29        printf("%c",hexnumber[j]);
30    }
31 }
```

67. WAP to convert decimal to binary number system.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 void decimaltobinary(int n){
5     if(n==0){
6         printf("Binary:0");
7         return;
8     }
9     int binary[32];
10    int i=0;
11    while(n>0){
12        binary[i]=n%2;
13        n=n/2;
14        i++;
15    }
16    printf("Binary:");
17    for(int j=i-1;j>=0;j--){
18        printf("%d",binary[j]);
19    }
20 }
21 int main(){
22     printf("Sahil-2316912023\n");
23     int decimalnumber;
24     printf("Enter a decimal number: ");
25     scanf("%d",&decimalnumber);
26     decimaltobinary(decimalnumber);
```

The output window shows the results of running the program. It starts with the message "Sahil-2316912023", followed by the prompt "Enter a decimal number: 65", and then the binary output "Binary:1000001".

68. WAP to convert decimal to octal number system.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     int decimal,quotient;
7     int octal[100],i=1,j;
8     printf("Enter a decimal number: ");
9     scanf("%d",&decimal);
10    quotient=decimal;
11    while(quotient!=0){
12        octal[i++]=quotient%8;
13        quotient=quotient/8;
14    }
15    printf("Octal equivalent: ");
16    for(j=i-1;j>0;j--){
17        printf("%d",octal[j]);
18    }
19
20    return 0;
21 }
```

The output window shows the results of running the program. It starts with the message "Sahil-2316912023", followed by the prompt "Enter a decimal number: 78", and then the octal output "Octal equivalent: 116".

69. WAP to convert decimal to hexadecimal number system.

The screenshot shows the Online C Compiler interface. The code editor contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main(){
5     printf("Sahil-2316912023\n");
6     int decimalnumber;
7     printf("Enter the decimal number: ");
8     scanf("%d",&decimalnumber);
9     printf("Hexadecimal equivalent:%X\n",decimalnumber);
10
11    return 0;
12 }
```

The output window shows the results of running the program. It first prints "Sahil-2316912023". Then it prompts the user to enter a decimal number. When "65" is entered, it outputs the hexadecimal equivalent "41".

70. WAP to convert hexadecimal to binary number system.

The screenshot shows a browser window with the title "Online C Compiler" and a tab titled "Nonstop Arjit singh Songs 2". The URL in the address bar is "programiz.com/c-programming/online-compiler/". The main content area is titled "Programiz C Online Compiler". It displays a C program in the "main.c" editor pane:

```
7     case '1':return "0001";
8     case '2':return "0010";
9     case '3':return "0011";
10    case '4':return "0100";
11    case '5':return "0101";
12    case '6':return "0110";
13    case '7':return "0111";
14    case '8':return "1000";
15    case '9':return "1001";
16    case 'A': case 'a':return "1010";
17    case 'B': case 'b':return "1011";
18    case 'C': case 'c':return "1100";
19    case 'D': case 'd':return "1101";
20    case 'E': case 'e':return "1110";
21    case 'F': case 'f':return "1111";
22    default:return "0000";
23 }
24 }
25 int main(){
26     printf("Sahil-2316912023\n");
27     char hex[17];
28     printf("Enter a hexadecimal number: ");
29     scanf("%16s",hex);
30     printf("Binary equivalent: ");
31     for(int i=0;i<strlen(hex);i++){
32         char hexdigit=hex[i];
33         if(hexdigit >='0' && hexdigit <='9')
```

The "Run" button is highlighted in yellow. The output pane shows the following results:

```
/tmp/2W9AJ1P14r.o
Sahil-2316912023
Enter a hexadecimal number: A5F
Binary equivalent: 101001011111
```

71. WAP to convert hexadecimal to octal number system.

The screenshot shows a web-based online compiler interface. At the top, there are tabs for "Tu Jaane Na Lyrical - Ajab H" and "Online C Compiler". Below the tabs, the URL "programiz.com/c-programming/online-compiler/" is visible. The main area has a "Programiz C Online Compiler" logo. There are several advertisements for "Sigma-Aldrich", "Anti-Phospho-IRF3-S396 antibody produced in rabbit", and "MERCK". On the left, there is a file browser with icons for various file types (C, C++, JS, PHP, etc.) and a list of files including "main.c". The code editor contains the following C code:

```
main.c
1 void hextooctal(char hex[]){
2     int binary[1000],octal[1000];
3     int hexlength=strlen(hex);
4     int octallength=0;
5     for(int i=0;i<hexlength;i++){
6         int digit=hexdiggito-binary(hex[i]);
7         if(digit== -1){
8             printf("Invalid hexadecimal digit:%c\n",hex[i]);
9             return;
10        }
11        for(int j=3;j>=0;j--){
12            binary[i*4+j]=(digit>>j)&1;
13        }
14        int padzeros=(3-hexlength%3)%3;
15        for(int i=0;i<padzeros;i++){
16            binary[hexlength*4+i]=0;
17        }
18        for(int i=0;i<hexlength*4;i+=3){
19            int octaldigit=0;
20            for(int j=0;j<3;j++){
21                octaldigit=octaldigit*2+binary[i+j];
22            }
23            octal[octallength++]=octaldigit;
24        }
25    }
26    printf("Hexadecimal:%s\n",hex);
27 }
```

The output window on the right shows the results of running the program. It displays the compiled file path "/tmp/Bypu3p3goz.o", the user "Sahil-2316912023", the input "Enter a hexadecimal number: A5D", the output "Hexadecimal:ASD", and "Octal:2653".

72. WAP to convert hexadecimal to decimal number system.

The screenshot shows a web-based online compiler interface. At the top, there are tabs for "LYRICAL: Main Agar Kahoon" and "Online C Compiler". Below the tabs, the URL "programiz.com/c-programming/online-compiler/" is visible. The main area has a "Programiz C Online Compiler" logo. There are several advertisements for "Sigma-Aldrich", "Anti-Phospho-IRF3-S396 antibody produced in rabbit", and "MERCK". On the left, there is a file browser with icons for various file types (C, C++, JS, PHP, etc.) and a list of files including "main.c". The code editor contains the following C code:

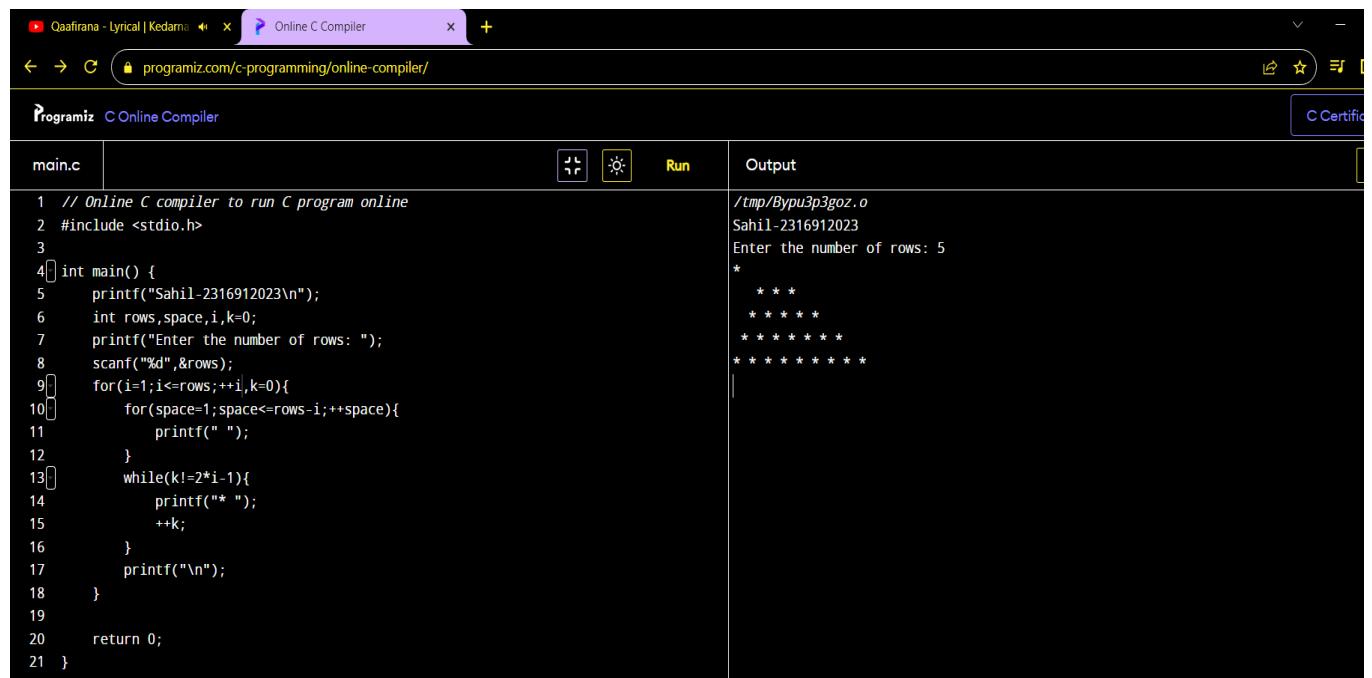
```
main.c
1 #include <stdio.h>
2
3 int main() {
4     printf("Sahil-2316912023\n");
5     char hex[10];
6     int decimal=0;
7     int length,i;
8     printf("Enter a hexadecimal number: ");
9     scanf("%s",hex);
10    length=strlen(hex);
11    for(i=0;i<length;i++){
12        char digit=hex[i];
13        int value;
14        if(digit>='0'&&digit<='9'){
15            value=digit-'0';
16        }else if(digit>='A'&&digit<='F'){
17            value=10+(digit-'A');
18        }else if(digit>='a'&&digit<='f'){
19            value=10+(digit-'a');
20        }else {
21            printf("Invalid hexadecimal digit:%c\n",digit);
22            return 1;
23        }
24        decimal+=value*pow(16,length-i-1);
25    }
26    printf("Decimal equivalent:%d\n",decimal);
27 }
28
29 return 0;
```

The output window on the right shows the results of running the program. It displays the compiled file path "/tmp/Bypu3p3goz.o", the user "Sahil-2316912023", the input "Enter a hexadecimal number: B9E", and the output "Decimal equivalent:2974".

PATTERN EXERCISES

1. Star pattern program – Write a C program to print the given star pattern.

Pyramid star pattern: -



The screenshot shows a web-based C compiler interface. The code editor contains a C program named main.c. The program prompts the user for the number of rows and then prints a pyramid star pattern. The output window shows the compiled file name, the user's name, the row count entered, and the resulting star pattern.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int rows, space, i, k=0;
7     printf("Enter the number of rows: ");
8     scanf("%d", &rows);
9     for(i=1; i<=rows; ++i, k=0){
10         for(space=1; space<=rows-i; ++space){
11             printf(" ");
12         }
13         while(k!=2*i-1){
14             printf("* ");
15             ++k;
16         }
17         printf("\n");
18     }
19
20     return 0;
21 }
```

Output:

```
/tmp/Bypu3p3goz.o
Sahil-2316912023
Enter the number of rows: 5
*
 * *
 * * *
 * * * *
 * * * * *
```

Hollow Pyramid Star Pattern

The screenshot shows an online C compiler interface on programiz.com. The code in main.c is as follows:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int rows,i,j,space;
7     printf("Enter the number of rows: ");
8     scanf("%d",&rows);
9     for(i=1;i<=rows;i++){
10         for(space=1;space<=rows-i;space++){
11             printf(" ");
12         }
13         for(j=1;j<=2*i-1;j++){
14             if(j==1||j==2*i-1||i==rows){
15                 printf("*");
16             }else{
17                 printf(" ");
18             }
19         }
20         printf("\n");
21     }
22
23     return 0;
24 }
```

The output window shows the result of running the program with 5 as input:

```
/tmp/Bypu3p3goz.o
Sahil-2316912023
Enter the number of rows: 5
*
 * *
 *   *
 *****
*****
```

Inverted pyramid star pattern

The screenshot shows an online C compiler interface on programiz.com. The code in main.c is as follows:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int rows,i,j;
7     printf("Enter the number of rows: ");
8     scanf("%d",&rows);
9     for(i=rows;i>=1;i--){
10         for(j=1;j<=rows-i;j++){
11             printf(" ");
12         }
13         for(j=1;j<=2*i-1;j++){
14             printf("*");
15         }
16         printf("\n");
17     }
18
19     return 0;
20 }
```

The output window shows the result of running the program with 5 as input:

```
/tmp/Bypu3p3goz.o
Sahil-2316912023
Enter the number of rows: 5
*****
*****
****
 ***
 *
*
```

Hollow inverted pyramid star pattern

The screenshot shows an online C compiler interface. The code in main.c prints a hollow inverted pyramid star pattern. When run with 5 rows, it produces:

```
// Online C compiler to run C program online
#include <stdio.h>
int main() {
    printf("Sahil-2316912023\n");
    int rows,i,j;
    printf("Enter the number of rows: ");
    scanf("%d",&rows);
    for(i=1;i<=rows;i++){
        for(j=1;j<=i;j++){
            printf(" ");
        }
        for(j=1;j<=(2*(rows-i)+1);j++){
            if(j==1||j==(2*(rows-i)+1)||i==rows){
                printf("**");
            }else{
                printf(" ");
            }
        }
        printf("\n");
    }
    return 0;
}
```

Output:
/tmp/Bypu3p3goz.o
Sahil-2316912023
Enter the number of rows: 5
* * *
* * *
* * *
* * *
*

Half diamond star pattern

The screenshot shows an online C compiler interface. The code in main.c prints a half diamond star pattern. When run with 6 rows, it produces:

```
// Online C compiler to run C program online
#include <stdio.h>
int main() {
    printf("Sahil-2316912023\n");
    int n,i,j;
    printf("Enter the number of rows: ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            printf("** ");
        }
        printf("\n");
    }
    for(i=n-1;i>=1;i--){
        for(j=1;j<=i;j++){
            printf("* ");
        }
        printf("\n");
    }
    return 0;
}
```

Output:
/tmp/Bypu3p3goz.o
Sahil-2316912023
Enter the number of rows: 6
*
* *
* * *
* * * *
* * * * *
* * * * *
* * * *
* * *
* *
*

Mirrored half diamond star pattern

The screenshot shows a web-based C compiler interface. The title bar reads "RadhaKrishn | Turn Prem Ho ✅ X Online C Compiler". The URL in the address bar is "programiz.com/c-programming/online-compiler/". The interface has tabs for "Programiz" and "C Online Compiler". The main area is divided into three sections: "main.c" (code editor), "Run" (button), and "Output".

The code in "main.c" is:

```
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int n,i,j;
7     int star,spaces;
8     printf("Enter the number of rows: ");
9     scanf("%d",&n);
10    spaces=n-1;
11    star=1;
12    for(i=1;i<=n*2;i++){
13        for(j=1;j<=spaces;j++){
14            printf(" ");
15        }
16        for(j=1;j<=star;j++){
17            printf("**");
18        }
19        printf("\n");
20        if(i<n){
21            star++;
22            spaces--;
23        }else {
24            star--;
25            spaces++;
26        }
27    }
28    return 0;
```

The "Output" section shows the compiled file path "/tmp/Bypu3p3goz.o", the user "Sahil-2316912023", and the command "Enter the number of rows: 6". Below this, the program's output is displayed as a mirrored half diamond star pattern:

```
*
 ** 
 *** 
 **** 
 ***** 
 **** 
 *** 
 ** 
 *
```

2. Number pattern program- Write a C program to print the given number patterns

Square Number Pattern-

The screenshot shows the Programiz Online C Compiler interface. The code editor contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int rows,cols,i,j;
7     printf("Enter number of rows: ");
8     scanf("%d",&rows);
9     printf("Enter number of columns: ");
10    scanf("%d",&cols);
11    for(i=1;i<=rows;i++){
12        for(j=1;j<=cols;j++){
13            printf("1");
14        }
15        printf("\n");
16    }
17
18    return 0;
19 }
```

The output window shows the generated square pattern:

```
/tmp/VTEeiyHfYU.o
Sahil-2316912023
Enter number of rows: 5
Enter number of columns: 5
11111
11111
11111
11111
11111
```

NUMBER PATTERN 1-

The screenshot shows the Programiz Online C Compiler interface. The code editor contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int rows,cols,i,j;
7     printf("Enter number of rows: ");
8     scanf("%d",&rows);
9     printf("Enter number of columns: ");
10    scanf("%d",&cols);
11    for(i=1;i<rows;i++){
12        for(j=1;j<=cols;j++){
13            if(i*j==1) {
14                printf("1");
15            }else {
16                printf("0");
17            }
18        }
19        printf("\n");
20    }
21
22
23    return 0;
24 }
```

The output window shows the generated pattern:

```
/tmp/AwvRxy6r47.o
Sahil-2316912023
Enter number of rows: 5
Enter number of columns: 5
11111
00000
11111
00000
11111
```

NUMBER PATTERN 2-

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int rows,cols,i,j;
7     printf("Enter number of rows: ");
8     scanf("%d",&rows);
9     printf("Enter number of columns: ");
10    scanf("%d",&cols);
11    for(i=1;i<=rows;i++){
12        for(j=1;j<=cols;j++){
13            if(j%2==1) {
14                printf("0");
15            } else {
16                printf("1");
17            }
18        }
19        printf("\n");
20    }
21
22
23    return 0;
24 }
```

The output window shows the generated pattern:

```
/tmp/AwvRxy6r47.o
Sahil-2316912023
Enter number of rows: 5
Enter number of columns: 5
01010
01010
01010
01010
01010
```

NUMBER PATTERN 3-

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int rows,cols,i,j;
7     printf("Enter number of rows: ");
8     scanf("%d",&rows);
9     printf("Enter number of columns: ");
10    scanf("%d",&cols);
11    for(i=1;i<=rows;i++){
12        for(j=1;j<=cols;j++){
13            if(i==1||i==rows||j==1||j==cols) {
14                printf("1");
15            } else {
16                printf("0");
17            }
18        }
19        printf("\n");
20    }
21
22
23    return 0;
24 }
```

The output window shows the generated pattern:

```
/tmp/AwvRxy6r47.o
Sahil-2316912023
Enter number of rows: 5
Enter number of columns: 5
11111
10001
10001
10001
11111
```

NUMBER PATTERN 4 -

The screenshot shows an online C compiler interface. The code in the editor is:

```
4 int main() {  
5     printf("Sahil-2316912023\n");  
6     int rows,cols,i,j;  
7     int centerrow,centercol;  
8     printf("Enter number of rows: ");  
9     scanf("%d",&rows);  
10    printf("Enter number of columns: ");  
11    scanf("%d",&cols);  
12    centerrow=(rows+1)/2;  
13    centercol=(cols+1)/2;  
14    for(i=1;i<=rows;i++){  
15        for(j=1;j<=cols;j++){  
16            if(centercol==j&&centerrow==i) {  
17                printf("0");  
18            }else if(cols%2==0&&centercol+1==j){  
19                if(centerrow==i||(rows%2==0&&centerrow+1==i))  
20                    printf("0");  
21                else  
22                    printf("1");  
23            }else if(rows%2==0&&centerrow+1==i){  
24                if(centercol==j||(cols%2==2&&centercol+1==j))  
25                    printf("0");  
26                else  
27                    printf("1");  
28            } else{  
29                printf("1");  
30            }  
31        }  
32    }  
33 }
```

The output window shows the generated pattern:

```
/tmp/AwvRxy6r47.o  
Sahil-2316912023  
Enter number of rows: 5  
Enter number of columns: 5  
11111  
11111  
11011  
11111  
11111
```

NUMBER PATTERN 5 -

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online  
2 #include <stdio.h>  
3  
4 int main() {  
5     printf("Sahil-2316912023\n");  
6     int rows,cols,i,j,k;  
7     printf("Enter number of rows: ");  
8     scanf("%d",&rows);  
9     printf("Enter number of columns: ");  
10    scanf("%d",&cols);  
11    k=1;  
12    for(i=1;i<=rows;i++){  
13        for(j=1;j<=cols;j++){  
14            if(k==1) {  
15                printf("1");  
16            }else{  
17                printf("0");  
18            }  
19            k=-1;  
20        }  
21        if(cols%2==0){  
22            k=-1;  
23        }  
24        printf("\n");  
25    }  
26 }
```

The output window shows the generated pattern:

```
/tmp/AwvRxy6r47.o  
Sahil-2316912023  
Enter number of rows: 5  
Enter number of columns: 5  
10101  
01010  
10101  
01010  
10101
```

IF..... ELSE EXERCISES

1. WAP to find maximum between two numbers.



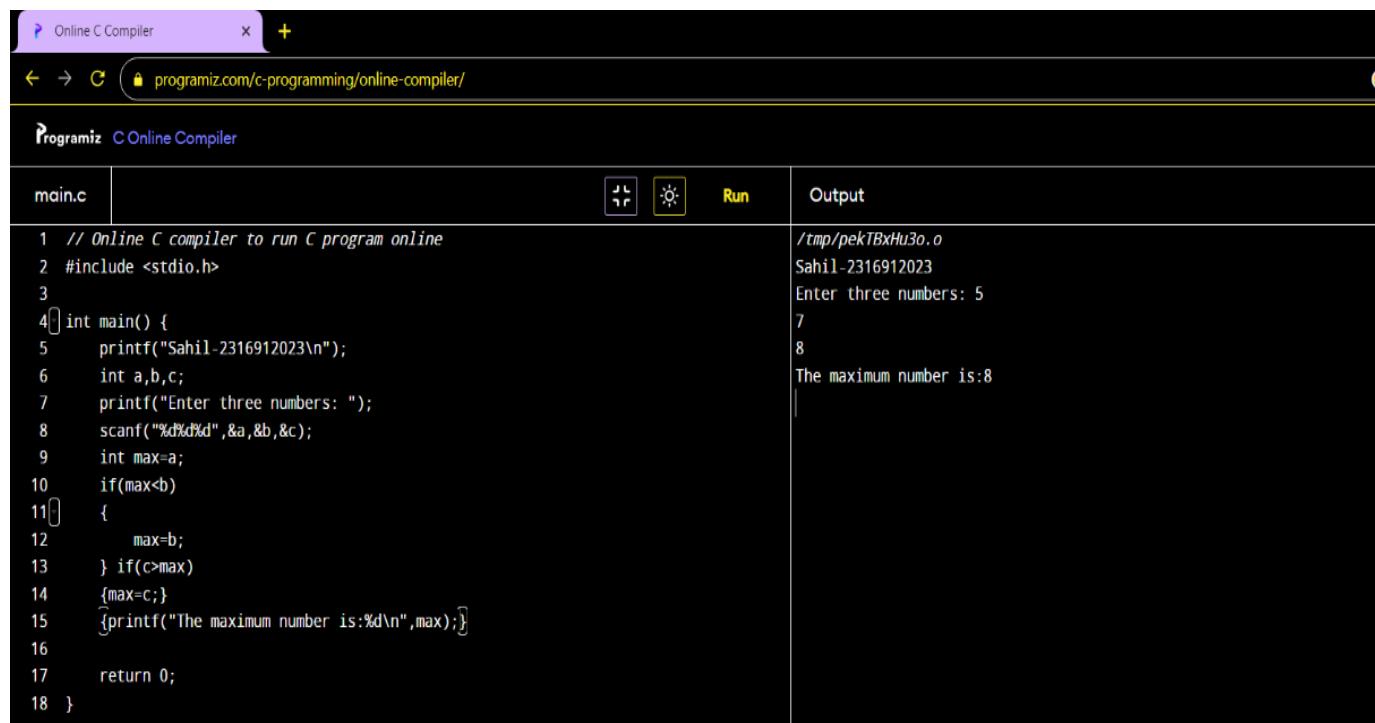
The screenshot shows a web-based C compiler interface from Programiz. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a,b;
7     printf("Enter two numbers: ");
8     scanf("%d%d",&a,&b);
9     if(a>b)
10    {printf("A is maximum");}
11    else{printf("B is maximum");}
12
13    return 0;
14 }
```

The output window shows the results of running the program with input 7 and 8:

```
/tmp/pekBxHu3o.o
Sahil-2316912023
Enter two numbers: 7
5
A is maximum
```

2. WAP to find maximum between three numbers.



The screenshot shows a web-based C compiler interface from Programiz. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a,b,c;
7     printf("Enter three numbers: ");
8     scanf("%d%d%d",&a,&b,&c);
9     int max=a;
10    if(max<b)
11    {
12        max=b;
13    } if(c>max)
14    {max=c;}
15    {printf("The maximum number is:%d\n",max);}
16
17    return 0;
18 }
```

The output window shows the results of running the program with input 7, 8, and 9:

```
/tmp/pekBxHu3o.o
Sahil-2316912023
Enter three numbers: 5
7
8
The maximum number is:8
```

3. WAP to check whether a number is negative, positive or zero.

The screenshot shows the Programiz Online C Compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a;
7     printf("Enter a number: ");
8     scanf("%d",&a);
9     if(a>0)
10    {printf("Number is positive.");}
11    else if(a<0)
12    {printf("Number is negative.");}
13    else {printf("The number is zero");}
14
15    return 0;
16 }
```

The output window shows the results of running the program with input -4:

```
/tmp/pekTBxHu3o.o
Sahil-2316912023
Enter a number: -4
Number is negative.
```

4. WAP to check whether a number is divisible by 5 and 11 or not.

The screenshot shows the Programiz Online C Compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a;
7     printf("Enter a number: ");
8     scanf("%d",&a);
9     if(a%5==0 && a%11==0)
10    {printf("Number is divisible by 5 and 11.");}
11    else
12    {printf("Number is not divisible by 5 and 11.");}
13
14    return 0;
15 }
```

The output window shows the results of running the program with input 55:

```
/tmp/pekTBxHu3o.o
Sahil-2316912023
Enter a number: 55
Number is divisible by 5 and 11.
```

5. WAP to check whether a number is even or odd.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int a;
7     printf("Enter a number: ");
8     scanf("%d",&a);
9     if(a%2==0)
10    {printf("Number is even.");}
11    else
12    {printf("Number is odd.");}
13
14    return 0;
15 }
```

The output window shows the results of running the program with input 6:

```
/tmp/pektBxHu3o.o
Sahil-2316912023
Enter a number: 6
Number is even.
```

6. WAP to check whether a year is leap year or not.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int year;
7     printf("Enter a number: ");
8     scanf("%d",&year);
9     if((year%4==0 && year%100!=0)|| (year%400==0))
10    {printf("year is a leap year.");}
11    else
12    {printf("year is not a leap year.");}
13
14    return 0;
15 }
```

The output window shows the results of running the program with input 2024:

```
/tmp/pektBxHu3o.o
Sahil-2316912023
Enter a number: 2024
year is a leap year.
```

7. WAP to check whether a character is alphabet or not.

The screenshot shows an online C compiler interface on programiz.com. The code in main.c checks if a character is an alphabet by comparing it against the ASCII values of lowercase and uppercase letters. It prints 'character is an alphabet.' if the character is between 'a' and 'z' or 'A' and 'Z', and 'character is not an alphabet.' otherwise. The output window shows the compiled file path, the user's name, and the input character 'j' followed by the output message 'character is an alphabet.'

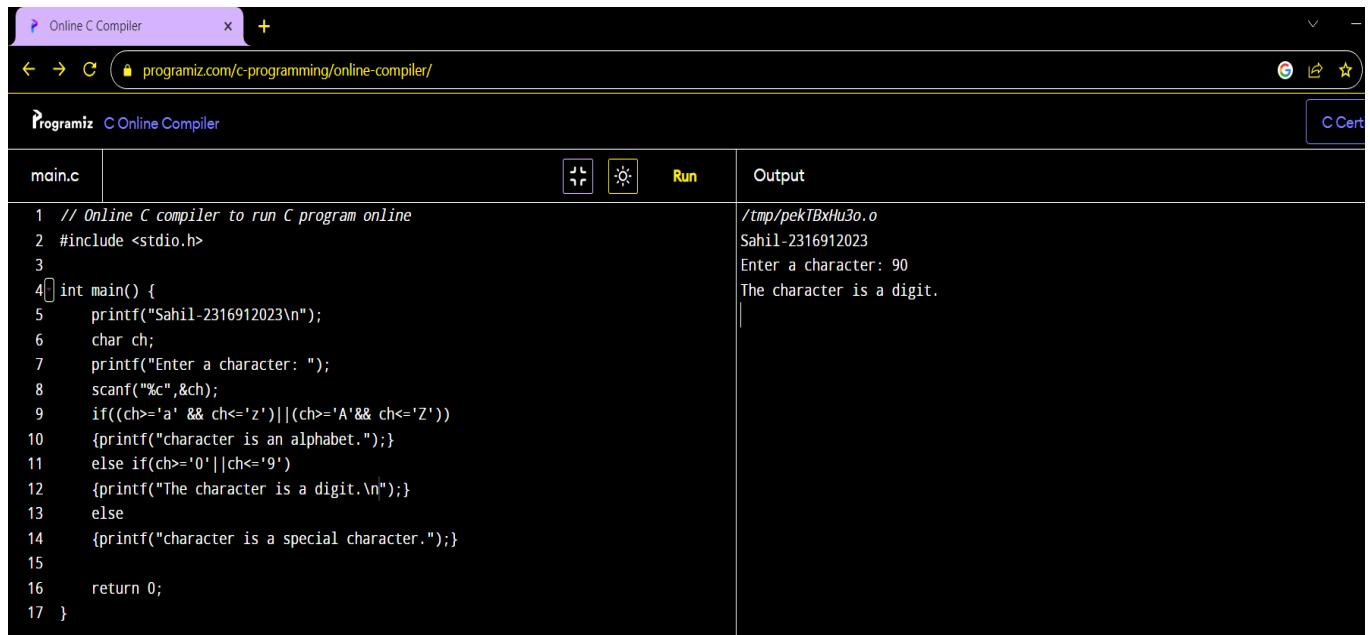
```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     char character;
7     printf("Enter a character: ");
8     scanf("%c",&character);
9     if((character>='a' && character<='z')||(character>='A'&& character<='Z'))
10    {printf("character is an alphabet.");}
11    else
12    {printf("character is not an alphabet.");}
13
14    return 0;
15 }
```

8. WAP to input any alphabet and check whether it is vowel or consonant.

The screenshot shows an online C compiler interface on programiz.com. The code in main.c checks if a character is a vowel by comparing it against the ASCII values of 'a', 'e', 'i', 'o', and 'u'. If the character matches any of these, it is printed as a vowel. Otherwise, if it is a letter (between 'a' and 'z' or 'A' and 'Z'), it is printed as a consonant. The output window shows the compiled file path, the user's name, and the input character 'A' followed by the output message 'character is a vowel.'

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     char ch;
7     printf("Enter a character: ");
8     scanf("%c",&ch);
9     if(ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u'||ch=='A'||ch=='E'||ch=='I'||ch
10      =='O'||ch=='U')
11    {printf("character is a vowel.");}
12    else if((ch>='a' && ch<='z')||(ch>='A'&& ch<='Z'))
13    {printf("character is a consonant.");}
14    else
15    {printf("character is not valid.Please enter alphabet.");}
16
17 }
```

9. WAP to input any character and check whether it is alphabet, digit or special character.



The screenshot shows the Programiz C Online Compiler interface. The code in main.c checks if a character is an alphabet, digit, or special character based on ASCII values. The output window shows the program's execution and the user's input '90'.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     char ch;
7     printf("Enter a character: ");
8     scanf("%c",&ch);
9     if((ch>='a' && ch<='z')||(ch>='A' && ch<='Z'))
10    {printf("character is an alphabet.\n");}
11    else if(ch>='0'||ch<='9')
12    {printf("The character is a digit.\n");}
13    else
14    {printf("character is a special character.\n");}
15
16    return 0;
17 }
```

Output:
/tmp/pekTBxHu3o.o
Sahil-2316912023
Enter a character: 90
The character is a digit.

10. WAP to check whether a character is uppercase or lowercase alphabet.



The screenshot shows the Programiz C Online Compiler interface. The code in main.c checks if a character is uppercase or lowercase. The output window shows the program's execution and the user's input 'A'.

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     char ch;
7     printf("Enter a character: ");
8     scanf("%c",&ch);
9     if(ch>='a' && ch<='z')
10    {printf("character is in lower case alphabet.\n");}
11    else if(ch>='A' && ch<='Z')
12    {printf("The character is in upper case alphabet.\n");}
13    else
14    {printf("character is not an alphabet.\n");}
15
16    return 0;
17 }
```

Output:
/tmp/pekTBxHu3o.o
Sahil-2316912023
Enter a character: A
The character is in upper case alphabet.

11. WAP to input week number and print week day.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int weeknumber;
7     printf("Enter a week number(1-7): ");
8     scanf("%d", &weeknumber);
9     if(weeknumber==1)
10     {printf("Monday\n");}
11     else if(weeknumber==2)
12     {printf("Tuesday\n");}
13     else if(weeknumber==3)
14     {printf("Wednesday\n");}
15     else if(weeknumber==4)
16     {printf("Thursday\n");}
17     else if(weeknumber==5)
18     {printf("Friday\n");}
19     else if(weeknumber==6)
20     {printf("Saturday\n");}
21     else if(weeknumber==7)
22     {printf("Sunday");}
23     else
24     {printf("Invalid input.Please enter a number between 1 and 7");}
25
26     return 0;
}
```

The output window shows the result of running the program with input 5:

```
/tmp/6XnkhAtqNe.o
Sahil-2316912023
Enter a week number(1-7): 5
Friday
```

12. WAP to input month number and print number of days in that month.

The screenshot shows a web-based C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int month;
7     printf("Enter the month number(1-12): ");
8     scanf("%d", &month);
9     if(month>1&&month<=12){
10         if(month==2){
11             printf("28 or 29(for a non-leap year)\n");
12         }
13         else if(month==4||month==6||month==9||month==11)
14             {printf("30 days\n");}
15         else
16             {printf("31 days\n");}
17     }
18     else
19     {printf("Invalid month number.Please enter a number between 1 and 12.\n");}
20
21     return 0;
22 }
```

The output window shows the result of running the program with input 2:

```
/tmp/6XnkhAtqNe.o
Sahil-2316912023
Enter the month number(1-12): 2
28 or 29(for a non-leap year)
```

13. WAP to count total number of notes in given amount.

The screenshot shows an online C compiler interface. The code in the editor is:

```
main.c
7 int notescount=0;
8 printf("Enter the amount: ");
9 scanf("%d",&amount);
10 if(amount>=2000){
11     notescount+=amount/2000;
12     amount%=2000;
13 }
14 if(amount>=500)
15 {notescount+=amount/500;
16     amount%=500;
17 }
18 if(amount>=200)
19 {
20     notescount+=amount/200;
21     amount%-=200;
22 }if(amount>=100)
23 {
24     notescount+=amount/100;
25     amount%-=100;
26 }if(amount>=50){
27     notescount+=amount/50;
28     amount%-=50;
29 }if(amount>=10){
30     notescount+=amount/10;
31     amount%-=10;
32 }if(amount>=5){
33     notescount+=amount/5;
34 }
```

The output window shows the results of running the program with an input of 1485:

```
/tmp/6XnkhAtqNe.o
Sahil-2316912023
Enter the amount: 1485
Total number of notes:9
```

14. WAP to input angles of a triangle and check whether triangle is valid or not.

The screenshot shows an online C compiler interface. The code in the editor is:

```
main.c
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     float angle1,angle2,angle3;
7     printf("Enter the three angles of the triangle: ");
8     scanf("%f%f%f",&angle1,&angle2,&angle3);
9     if(angle1+angle2+angle3==180)
10    {
11        printf("These angles can form a valid triangle.\n");
12    }else{
13        printf("These angles cannot form a valid triangle.\n");
14    }
15
16    return 0;
17 }
```

The output window shows the results of running the program with inputs 78, 42, and 60:

```
/tmp/6XnkhAtqNe.o
Sahil-2316912023
Enter the three angles of the triangle: 78
42
60
These angles can form a valid triangle.
```

15. WAP to input all sides of a triangle and check whether triangle is valid or not.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     double side1,side2,side3;
7     printf("Enter the length of three sides of the triangle: ");
8     scanf("%lf%lf%lf",&side1,&side2,&side3);
9     if(side1+side2>side3&&side1+side3>side2&&side2+side3>side1)
10    {
11        printf("These triangle is a valid triangle.\n");
12    }else{
13        printf("These triangle is not a valid triangle.\n");
14    }
15
16    return 0;
17 }
```

The output window shows the results of running the program with input 5, 9, and 7. The output is:

```
/tmp/6XnhhAtqNe.o
Sahil-2316912023
Enter the length of three sides of the triangle: 7
5
9
These triangle is a valid triangle.
```

16. WAP to check whether the triangle is equilateral, isosceles or scalene triangle.

The screenshot shows an online C compiler interface. The code in the editor is:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     double side1,side2,side3;
7     printf("Enter the length of three sides of the triangle: ");
8     scanf("%lf%lf%lf",&side1,&side2,&side3);
9     if(side1==side2&&side2==side3)
10    {
11        printf("This is an equilateral triangle.\n");
12    }
13    else if(side1==side2||side1==side3||side2==side3)
14    {
15        printf("This is an isosceles triangle.\n");
16    }
17    else{
18        printf("This is a scalene triangle.\n");
19    }
20
21    return 0;
22 }
```

The output window shows the results of running the program with input 4, 8, and 4. The output is:

```
/tmp/6XnhhAtqNe.o
Sahil-2316912023
Enter the length of three sides of the triangle: 4
4
8
This is an isosceles triangle.
```

17. WAP to find all roots of a quadratic equation.

The screenshot shows an online C compiler interface. The title bar says "Tum Se Hi Lyrical | Jab We Met" and "Online C Compiler". The URL in the address bar is "programiz.com/c-programming/online-compiler/". The code editor contains "main.c" with the following C code:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include<math.h>
4 int main() {
5     printf("Sahil-2316912023\n");
6     double a,b,c;
7     double discriminant,realpart,imaginarypart,root1,root2;
8     printf("Enter the coefficients a, b and c ");
9     scanf("%lf%lf%lf",&a,&b,&c);
10    discriminant=b*b-4*a*c;
11    if(discriminant>0)
12    {
13        root1=(-b+sqrt(discriminant))/(2*a);
14        root2=(-b-sqrt(discriminant))/(2*a);
15        printf("Root1=%.2lf and Root2=%.2lf\n",root1,root2);
16    }
17    else if(discriminant==0)
18    {
19        root1=-b/(2*a);
20        printf("Root=%.2lf\n",root1);
21    }
22    else{
23        realpart=-b/(2*a);
24        imaginarypart=sqrt(-discriminant)/(2*a);
25        printf("Root 1=%.2lf+%.2lfj and Root2=%.2lf-%.2lfj\n",realpart,imaginarypart
               ,realpart,imaginarypart);
26    }
27}
```

The output window shows the results of running the program. It starts with the file path "/tmp/6XnkhAtqNe.o" and the user name "Sahil-2316912023". It then prompts for coefficients: "Enter the coefficients a, b and c ". The user inputs "2" and "7". The output shows the roots: "Root 1=-0.25+1.30 and Root2=-0.25-1.30".

18. WAP to calculate profit or loss.

The screenshot shows an online C compiler interface. The title bar says "Dil Ibaadat Lyrics | Tum Mile" and "Online C Compiler". The URL in the address bar is "programiz.com/c-programming/online-compiler/". The code editor contains "main.c" with the following C code:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3 #include<math.h>
4 int main() {
5     printf("Sahil-2316912023\n");
6     float costprice,sellingprice,profit,loss;
7     printf("Enter the cost price: ");
8     scanf("%f",&costprice);
9     printf("Enter the selling price: ");
10    scanf("%f",&sellingprice);
11    if(sellingprice>costprice){
12        profit=sellingprice-costprice;
13        printf("Profit: %.2f\n",profit);
14    }else if(costprice>sellingprice){
15        loss=costprice-sellingprice;
16        printf("Loss: %.2f\n",loss);
17    }else{
18        printf("No profit,no loss.\n");
19    }
20
21    return 0;
22 }
```

The output window shows the results of running the program. It starts with the file path "/tmp/6XnkhAtqNe.o" and the user name "Sahil-2316912023". It then prompts for cost price: "Enter the cost price: " and selling price: ". The user inputs "56" and "98". The output shows the profit: "Profit: 42.00".

19. WAP to input marks of five subject physics, chemistry, biology, mathematics and computer. Calculate percentage and grade according to the following:

Percentage >= 90% || Grade A

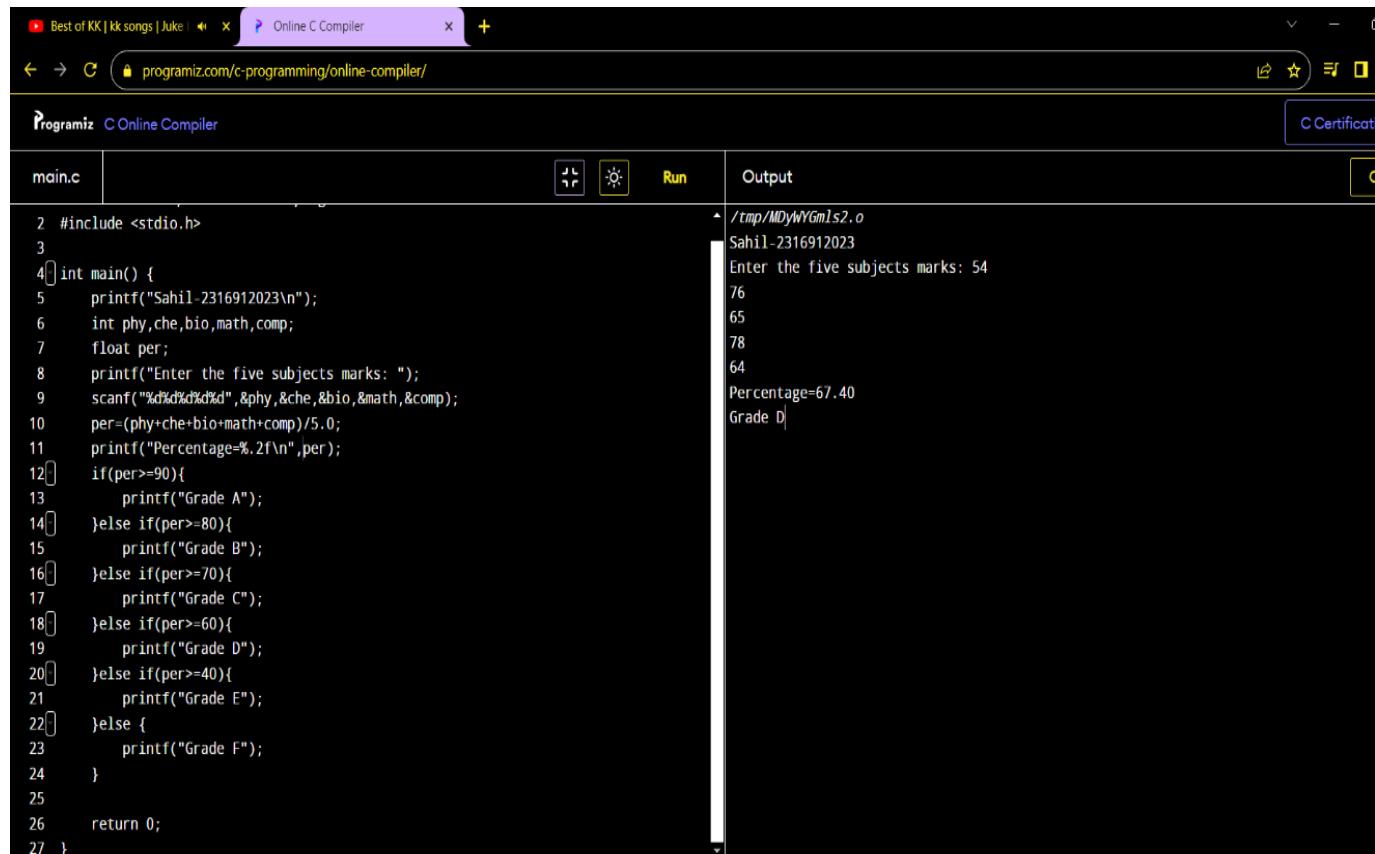
Percentage >= 80% || Grade B

Percentage >= 70% || Grade C

Percentage >= 60% || Grade D

Percentage >= 50% || Grade E

Percentage < 40% || Grade F



The screenshot shows a web-based C compiler interface. The top bar includes tabs for 'Best of KK | kk songs | Juke' and 'Online C Compiler'. The address bar shows the URL 'programiz.com/c-programming/online-compiler/'. The main area has tabs for 'Programiz' and 'Online Compiler'. On the left, the code editor contains 'main.c' with the following C code:

```
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int phy,che,bio,math,comp;
7     float per;
8     printf("Enter the five subjects marks: ");
9     scanf("%d%d%d%d%d",&phy,&che,&bio,&math,&comp);
10    per=(phy+che+bio+math+comp)/5.0;
11    printf("Percentage=%,.2f\n",per);
12    if(per>=90){
13        printf("Grade A");
14    }else if(per>=80){
15        printf("Grade B");
16    }else if(per>=70){
17        printf("Grade C");
18    }else if(per>=60){
19        printf("Grade D");
20    }else if(per>=40){
21        printf("Grade E");
22    }else {
23        printf("Grade F");
24    }
25
26    return 0;
27 }
```

The right side shows the 'Output' window with the following text:

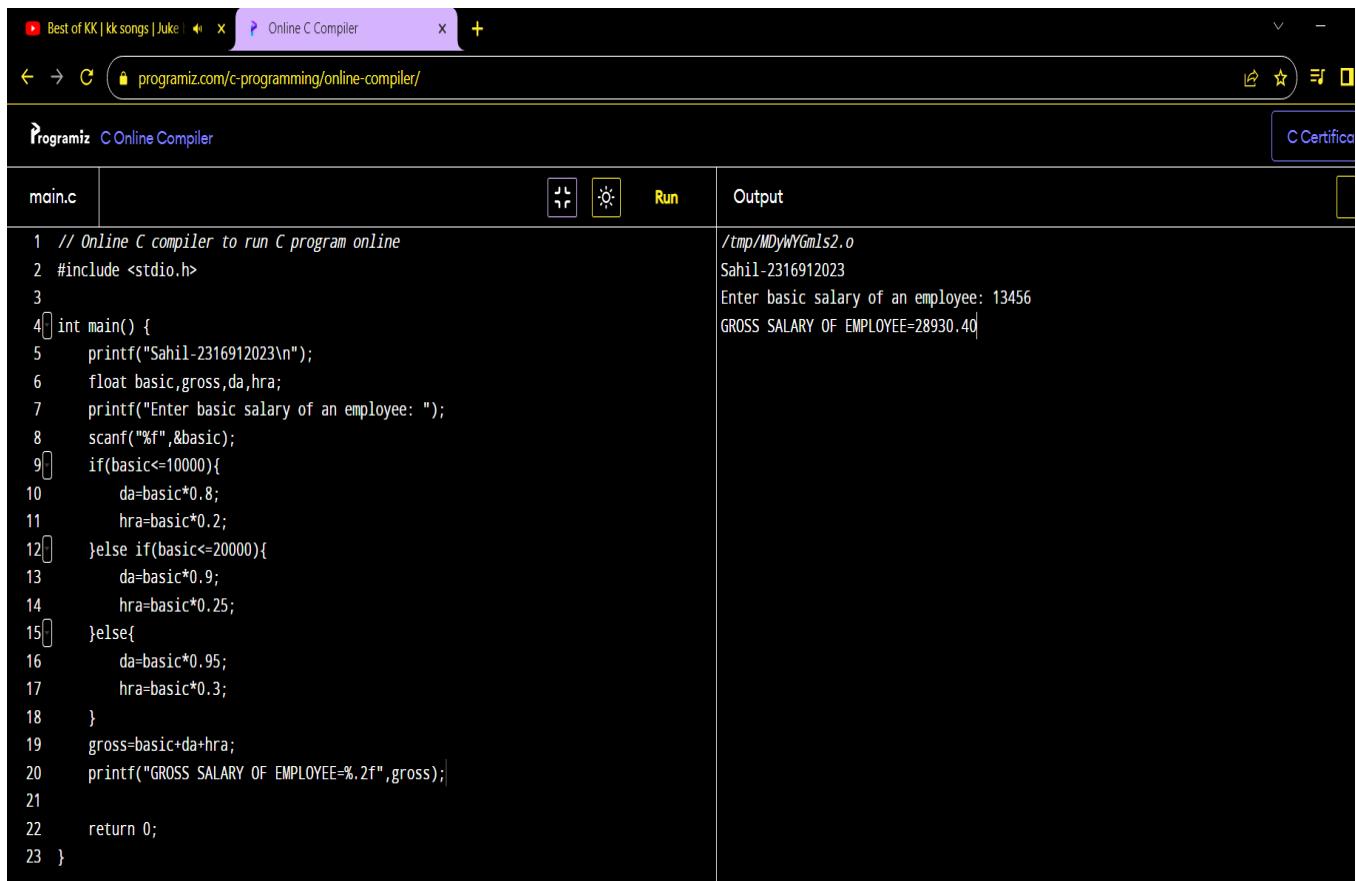
```
/tmp/M0dyhYGm1s2.o
Sahil-2316912023
Enter the five subjects marks: 54
76
65
78
64
Percentage=67.40
Grade D
```

20. WAP to input Basic salary of an employee and calculate its Gross salary according to following:

Basic salary <= 10000 || HRA = 20%, DA = 80%

Basic salary <= 20000 || HRA = 25%, DA = 90%

Basic salary > 20000 || HRA = 30%, DA = 95%



The screenshot shows a web-based C compiler interface from Programiz. The title bar says "Best of KK | kk songs | Juke | Online C Compiler". The URL in the address bar is "programiz.com/c-programming/online-compiler/". The interface has tabs for "Programiz" and "Online Compiler". On the right, there's a "CCertificate" button. The code editor contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     float basic,gross,da,hra;
7     printf("Enter basic salary of an employee: ");
8     scanf("%f",&basic);
9     if(basic<=10000){
10         da=basic*0.8;
11         hra=basic*0.2;
12     }else if(basic<=20000){
13         da=basic*0.9;
14         hra=basic*0.25;
15     }else{
16         da=basic*0.95;
17         hra=basic*0.3;
18     }
19     gross=basic+da+hra;
20     printf("GROSS SALARY OF EMPLOYEE=%f",gross);
21
22     return 0;
23 }
```

The output window shows the results of running the program with an input of 13456:

```
/tmp/MDywYGMls2.o
Sahil-2316912023
Enter basic salary of an employee: 13456
GROSS SALARY OF EMPLOYEE=28930.40
```

21. WAP to input electricity unit charges and calculate total electricity bill according to the given condition:

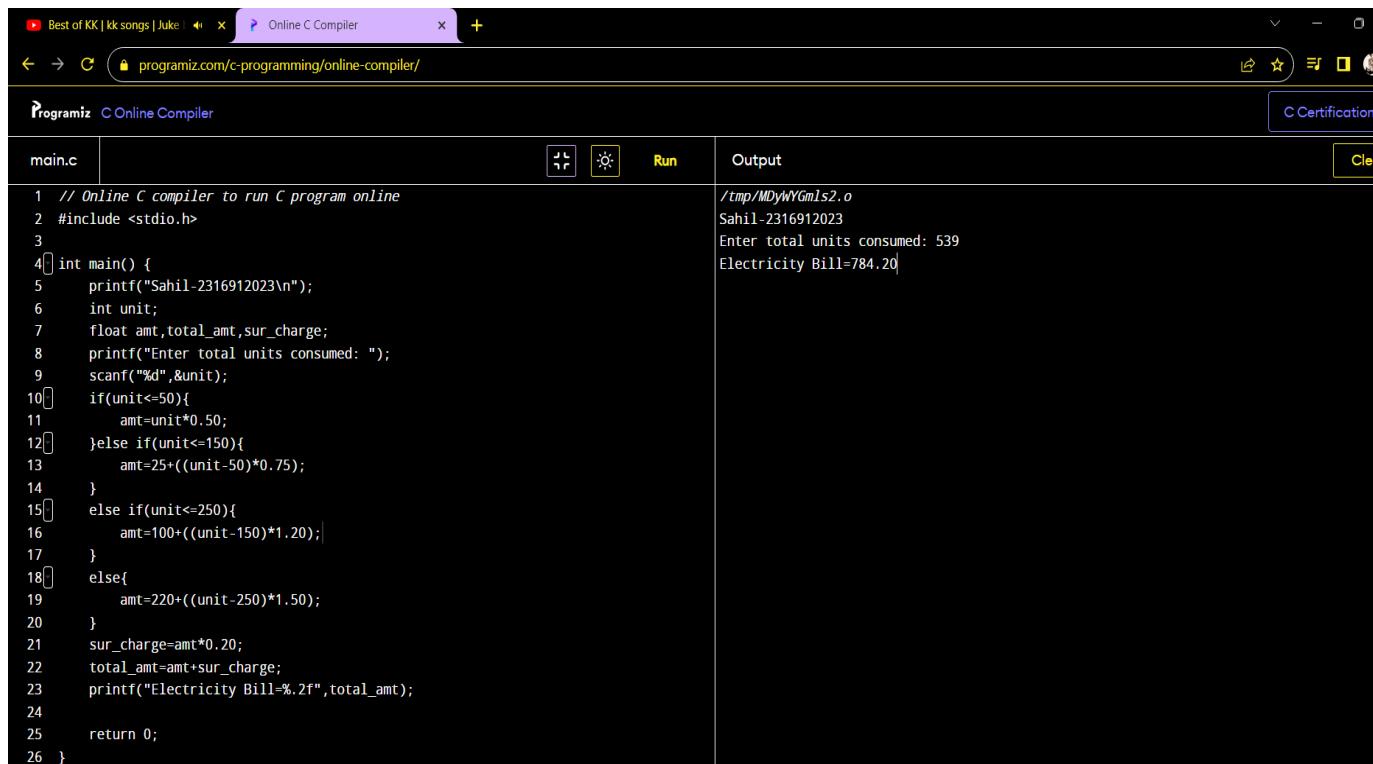
For first 50 units - Rs. 0.50/unit

For next 100 units - Rs. 0.75/unit

For next 100 units - Rs. 1.20/unit

For unit above 250 - Rs. 1.50/unit

An additional surcharge of 20% is added to the bill



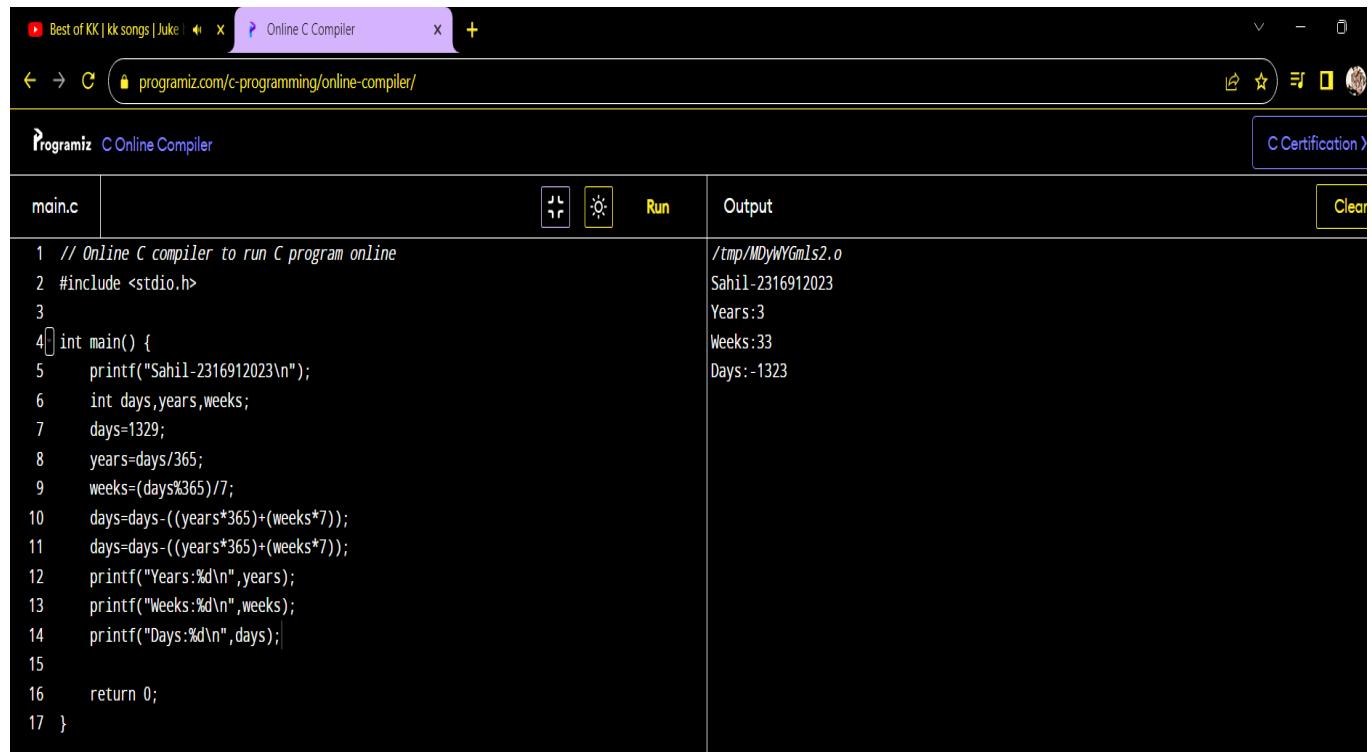
The screenshot shows an online C compiler interface. The code editor window contains the following C program:

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     printf("Sahil-2316912023\n");
6     int unit;
7     float amt, total_amt, sur_charge;
8     printf("Enter total units consumed: ");
9     scanf("%d", &unit);
10    if(unit<=50){
11        amt=unit*0.50;
12    }else if(unit<=150){
13        amt=25+((unit-50)*0.75);
14    }
15    else if(unit<=250){
16        amt=100+((unit-150)*1.20);
17    }
18    else{
19        amt=220+((unit-250)*1.50);
20    }
21    sur_charge=amt*0.20;
22    total_amt=amt+sur_charge;
23    printf("Electricity Bill=%.2f",total_amt);
24
25    return 0;
26 }
```

The output window shows the following results:

```
/tmp/MDyWYGm1s2.o
Sahil-2316912023
Enter total units consumed: 539
Electricity Bill=784.20
```

22. WAP to convert specified days into years, weeks and days.



The screenshot shows a web-based C compiler interface. The title bar says "Online C Compiler". The URL in the address bar is "programiz.com/c-programming/online-compiler/". The left pane contains the C code for the program. The right pane shows the output of the compiled program.

main.c	Run	Output
<pre>1 // Online C compiler to run C program online 2 #include <stdio.h> 3 4 int main() { 5 printf("Sahil-2316912023\n"); 6 int days,years,weeks; 7 days=1329; 8 years=days/365; 9 weeks=(days%365)/7; 10 days=days-((years*365)+(weeks*7)); 11 days=days-((years*365)+(weeks*7)); 12 printf("Years:%d\n",years); 13 printf("Weeks:%d\n",weeks); 14 printf("Days:%d\n",days); 15 16 return 0; 17 }</pre>		<pre>/tmp/MDyWYGmIs2.o Sahil-2316912023 Years:3 Weeks:33 Days:-1323</pre>

