Q1. (a) Write a C program to add two numbers.

(b) Write a C program to add three numbers.

(a)

#include <stdio.h>

int main()

{

int n1; int n2; int sum;

printf("Enter first number:");

scanf("%d", &n1);

printf("\n Enter second number:");

scanf("%d", &n2);

sum = n1+n2;

printf("\n The sum of two numbers is %d",sum);

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

(b)

#include <stdio.h>

int main()

{

int n1,n2,n3; int sum;

printf("Enter first number: ");

scanf("%d", &n1);

printf("\n Enter second number: ");

scanf("%d", &n2);

printf("\n Enter third number: ");

scanf("%d", &n3);

sum = n1+n2+n3;

printf("\n The sum of two numbers is %d",sum);

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

Q2. (a) Write a C program to find area of circle

(b) Write a C program to calculate simple interest

(a)

#include <stdio.h>

main()

{

float r; float ar;

printf("Enter radius:\n");

scanf("%f", &r);

ar = 3.14\*r\*r;

printf("\n The area of the circle is %f ", ar);

}

OUTPUT:

Graphical user interface, text

Description automatically generated

(b)

#include <stdio.h>

int main()

{

float p,r,t;

printf("Enter principle:");

scanf("%f", &p);

printf("\nEnter rate:");

scanf("%f", &r);

printf("\nEnter time:");

scanf("%f", &t);

printf("\n Simple Interest: %.2f",p\*r\*t/100.0);

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

Q3. Write a C program to print a block F using hash (#), where the F has a height of six characters and width of five and four characters.

#include <stdio.h>

int main()

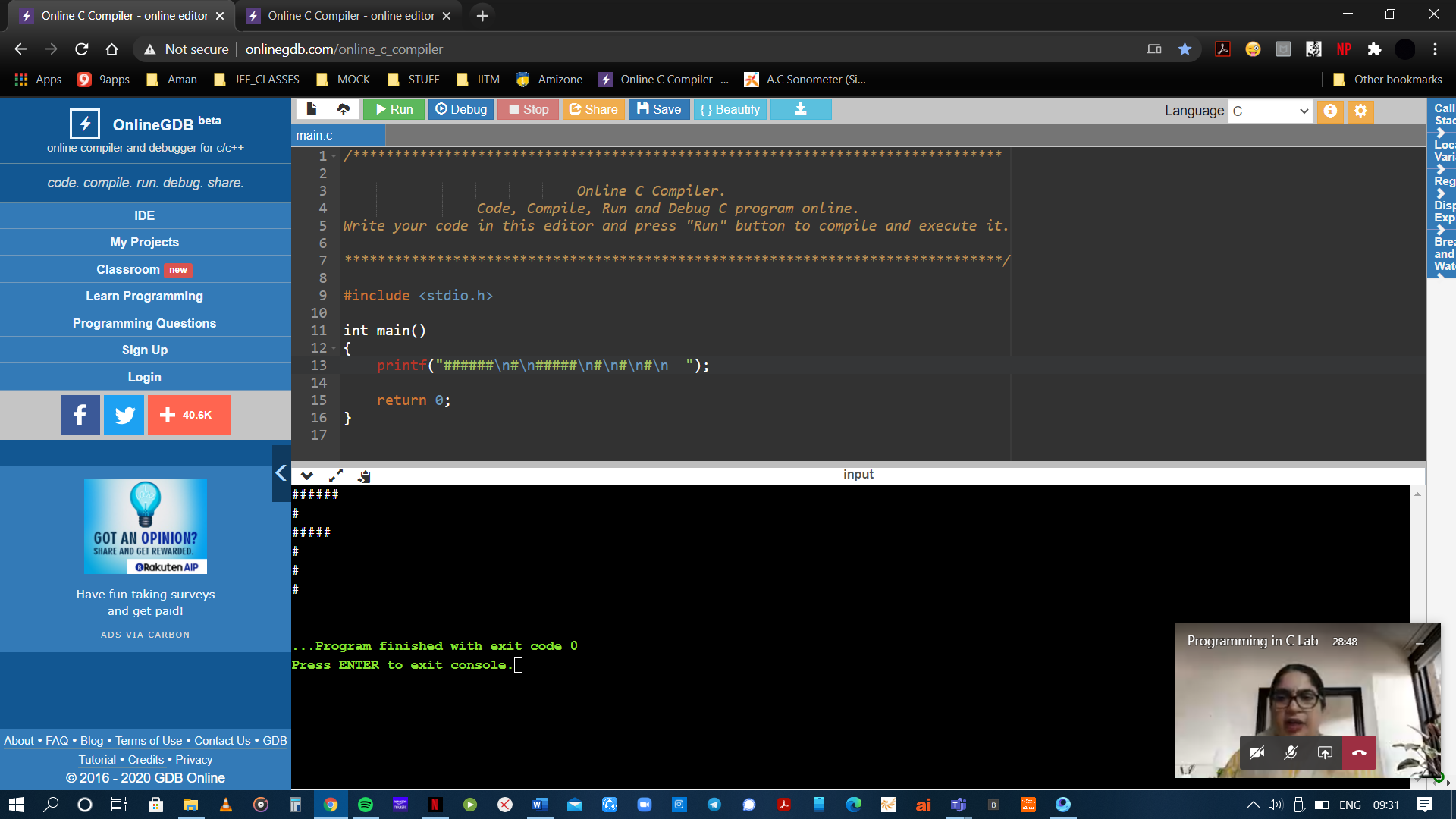
{

printf("######\n#\n#####\n#\n#\n#\n ");

return 0;

}

OUTPUT:



Q4. Write a C program that accepts two item’s weight (floating points' values) and number of purchase (floating points' values) and calculate the average value of the items.

#include <stdio.h>

int main()

{

float a,b;

int n1,n2;

printf("Enter weight of article 1: ");

scanf("%f", &a);

printf("\nEnter weight of article 2: ");

scanf("%f", &b);

printf("\nEnter number of article 1: ");

scanf("%d", &n1);

printf("\nEnter number of article 2: ");

scanf("%d", &n2);

printf("Average: %f",((a\*n1)+(b\*n2))/(n1+n2));

}

OUTPUT:

Text

Description automatically generated

Q5. (a) Write a C program to swap two variables using a third variable.

(b) Write a C program to swap two variables without using a third variable.

(a)

#include <stdio.h>

int main()

{

int a;int b;int t;

printf("Enter first number:");

scanf("%d",&a);

printf("Enter second number:");

scanf("%d",&b);

t = a;

a = b;

b = t;

printf("Exchanged numbers are: %d , %d",a,b);

return 0;

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

(b)

#include <stdio.h>

int main()

{

int a;int b;int t;

printf("Enter first number:")

scanf("%d",&a);

printf("Enter second number:")

scanf("%d",&b);

a= a+b;

b=a-b;

a=a-b;

printf("Exchanged numbers are: %d , %d",a,b);

return 0;

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

Q6. (a) Write a C program to convert a given integer (in seconds) to hours and minutes.

(b) Write a C program to convert specified days into years, weeks, and days.

Note: Ignore leap year. Test Data: Number of days: 1329-3 years,33 weeks and 3 days

(c) Write a C program to check whether a number is even or odd.

(a)

#include <stdio.h>

int main()

{

int t,h,m,s;

printf("Enter time in seconds: ");

scanf("%d", &t);

h=(int)(t/3600.0);

m=(t%3600)/60;

s=(t%3600)%60;

printf("%dhr %dmin %dsec",h,m,s);

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

(b)

#include <stdio.h>

int main()

{

int t,y,m,d;

printf("Enter days: ");

scanf("%d", &t);

y=(int)(t/365);

m=(t%365)/7;

d=(t%365)%7;

printf("%dyears %dweeks %ddays",y,m,d);

}

OUTPUT:

Graphical user interface

Description automatically generated

(c)

#include <stdio.h>

int main()

{

int n;

printf("Enter number: ");

scanf("%d", &n);

if(n%2==0)

printf("%d is an Even number.",n);

else

printf("%d is an Odd number.",n);

}

OUTPUT:

Graphical user interface, application

Description automatically generated

Q7. Write a C program to check whether a given year is Leap year or not.

#include <stdio.h>

int main()

{

int y;

printf("Enter year: ");

scanf("%d", &y);

if (y % 400 == 0)

printf("%d is a leap year.", y);

else if (y % 100 == 0)

printf("%d is not a leap year.", y);

else if (y % 4 == 0)

printf("%d is a leap year.", y);

else

printf("%d is not a leap year.", y);

}

OUTPUT:

Graphical user interface

Description automatically generated

Q8. (a) Write a C program to check whether a triangle is Equilateral, scalene, or isosceles.

(b) Write a C program to check whether a triangle is right angles, obtuse, acute triangle.

(a)

#include <stdio.h>

int main()

{

int a,b,c;

printf("Enter side 1: ");

scanf("%d", &a);

printf("Enter side 2: ");

scanf("%d", &b);

printf("Enter side 3: ");

scanf("%d", &c);

if (a==b&&b==c)

printf("EQUILATERAL TRIANGLE");

else if (a==b||b==c)

printf("ISOCELES TRIANGLE");

else

printf("SCALENE TRIANGLE");

}

OUTPUT:

Graphical user interface, application

Description automatically generated

(b)

#include <stdio.h>

int main()

{

int a,b,c;

printf("Enter angle 1: ");

scanf("%d", &a);

printf("Enter angle 2: ");

scanf("%d", &b);

printf("Enter angle 3: ");

scanf("%d", &c);

if(a+b+c==180)

{

if (a==90||b==90||c==90)

printf("RIGHT TRIANGLE");

else if (a>90||b>90||c>90)

printf("OBTUSE TRIANGLE");

else

printf("ACUTE TRIANGLE");

}

else

printf("TRIANGLE NOT POSSIBLE!");

}

OUTPUT:

Text

Description automatically generated

Q9. Write a C program to covert temperature from Fahrenheit to Celsius and Celsius to Fahrenheit (User must provide the choice of type of temperature).

#include <stdio.h>

int main()

{

float t,r;

int ch;

printf("Enter temp: ");

scanf("%f",&t);

printf("Enter 1 for converting farenheit to celsius and 2 for vice versa: ");

scanf("%d",&ch);

if(ch==1)

{

r=(t-32)/1.8;

printf("Temperature in celsius: ");

}

else if(ch==2)

{

r=(1.8\*t)+32;

printf("Temperature in farenheit: ");

}

printf("%f",r);

return 0;

}

OUTPUT: Graphical user interface, text

Description automatically generated

Q10. (a) Write a C program to check whether a character is an alphabet OR digit.

(b) Write a C program a program to check whether an alphabet is a vowel or consonant.

(a)

#include <stdio.h>

int main()

{

char c;

printf("Enter character: ");

scanf("%c",&c);

if(c>=65&&c<=90||c>=97&&c<=122)

printf("It is an alphabet.");

else if(c>=48&&c<=57)

printf("It is a digit.");

else

printf("It is a special character.");

}

OUTPUT:

Graphical user interface, text

Description automatically generated with medium confidence

(b)

#include <stdio.h>

int main()

{

char c;

printf("Enter character: ");

scanf("%c",&c);

if(c>=65&&c<=90 || c>=97&&c<=122)

{

if(c=='A'||c=='E'||c=='I'||c=='O'||c=='U'||c=='a'||c=='e'||c=='i'||c=='o'||c=='u')

printf("'%c' is a vowel.",c);

else

printf("'%c' is a consonant.",c);

}

else

printf("'%c' IS NOT AN ALPHABET",c);

}

OUTPUT:

Text

Description automatically generated

Q11. (a) Write a C program to find smallest of two numbers.

(b) Write a C program to find largest of three numbers.

(a)

#include <stdio.h>

int main()

{

int n1,n2;

printf("Enter number 1: ");

scanf("%d",&n1);

printf("Enter number 2: ");

scanf("%d",&n2);

if(n1<n2)

printf("%d is smaller among the two numbers.",n1);

else if(n2<n1)

printf("%d is smaller among the two numbers.",n2);

else

printf("Numbers are Equal.");

}

OUTPUT:

Graphical user interface, text

Description automatically generated

(b)

#include <stdio.h>

int main()

{

int n1,n2,n3;

printf("Enter number 1: ");

scanf("%d",&n1);

printf("Enter number 2: ");

scanf("%d",&n2);

printf("Enter number 3: ");

scanf("%d",&n3);

if(n1>n2&&n1>n3)

printf("%d is the greatest among the three numbers.",n1);

else if(n2>n1&&n2>n3)

printf("%d is the greatest among the three numbers.",n2);

else if(n3>n1&&n3>n2)

printf("%d is the greatest among the three numbers.",n3);

else

printf("Numbers are equal.");

}

OUTPUT:

Text

Description automatically generated

Q12. Write a program in C to implement Simple Calculator.

#include <stdio.h>

int main()

{

char op;

double a,b;

printf("Enter an operator (+, -, \*,/): ");

scanf("%c", &op);

printf("Enter two operands: ");

scanf("%lf %lf", &a, &b);

switch (op)

{

case '+': printf("%.2lf + %.2lf = %.2lf", a, b, a + b);

break;

case '-': printf("%.2lf - %.2lf = %.2lf", a, b, a - b);

break;

case '\*': printf("%.2lf \* %.2lf = %.2lf", a, b, a \* b);

break;

case '/': printf("%.2lf / %.2lf = %.2lf", a, b, a / b);

break;

default : printf("Error! operator is not correct");

}

}

OUTPUT:

Graphical user interface, text

Description automatically generated

Q13. WAP to calculate the root of a Quadratic Equation.

#include <math.h>

#include <stdio.h>

#include <stdlib.h>

void main()

{

int a,b,c;

printf("Enter value of a: ");

scanf("%d",&a);

printf("Enter value of b: ");

scanf("%d",&b);

printf("Enter value of c: ");

scanf("%d",&c);

if (a == 0)

{

printf("Invalid");

return;

}

int d = b \* b - 4 \* a \* c;

double sqrt\_val = sqrt(abs(d));

if (d > 0)

{

printf("Roots are real and different \n");

printf("%f\n%f", (double)(-b + sqrt\_val) / (2 \* a),

(double)(-b - sqrt\_val) / (2 \* a));

}

else if (d == 0)

{

printf("Roots are real and same \n");

printf("%f", -(double)b / (2 \* a));

}

else

{

printf("Roots are complex \n");

printf("%f + i%f\n%f - i%f", -(double)b / (2 \* a),

sqrt\_val, -(double)b / (2 \* a), sqrt\_val);

}

}

OUTPUT:

A picture containing shape

Description automatically generated

Q14. WAP to accept a coordinate point in a XY coordinate system and determine in which quadrant the coordinate point lies.

#include<stdio.h>

void main()

{

int a,b;

printf("enter the co-ordinates\n");

printf("Enter value: ");

scanf("%d",&a);

printf("Enter value: ");

scanf("%d",&b);

int \*ptr1=&a;

int \*ptr2=&b;

if(\*ptr1>=0)

{

if(\*ptr2>=0)

{

printf("first quadrant");

}

else

{

printf("fourth quadrant");

}

}

else

{

if(\*ptr2>=0)

{

printf("second quadrant");

}

else

{

printf("third quadrant");

}

}

}

OUTPUT:

A picture containing text

Description automatically generated

Q15. Write a program to find gross salary of employee if DA is 40% of basic Salary and HRA is 20% of basic salary. Basic salary will be entered as input by keyboard.

#include <math.h>

void main()

{

float bs;

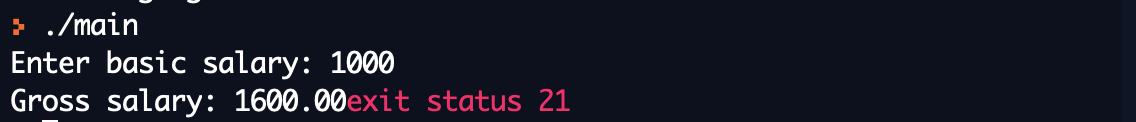
printf("Enter basic salary: ");

scanf("%f",&bs);

printf("Gross salary: %.2f",(bs+.4\*bs+.2\*bs));

}

OUTPUT:



Q16. Write a program in C to calculate and print the Electricity bill of a given customer. The customer id and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer.

up to 199------------1.20

200-500-------------1.80

Above 500----------2.00

If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/-

#include <math.h>

void main()

{

char cid[30];float u,b;

printf("Enter Customer ID: ");

scanf("%s",&cid);

printf("Enter number of units consumed: ");

scanf("%f",&u);

if(u<200)

b=u\*1.20;

else if(u<500)

b=(199\*1.20)+(u-199)\*1.80;

else

b=(199\*1.20)+(301\*1.50)+(u-500)\*2.00;

if(b<100)

printf("BILL\nCUSTOMER ID: %s\nTotal Bill Amount: 100",cid);

else if(b>400)

printf("BILL\nCUSTOMER ID: %s\nTotal Bill Amount: %.2f",cid,1.15\*b);

else

printf("BILL\nCUSTOMER ID: %s\nTotal Bill Amount: %.2f",cid,b);

}

OUTPUT:

Graphical user interface, text

Description automatically generated with medium confidence

Q17. A library charges a fine for every book returned late. For first 5 days the fine is 50 paisa, for 6-10 days, fine is one rupee and above 10 days, fine is 5 rupees. If you return the book after 30 days your membership will be cancelled. Write a program to accept the number of days the member is late to return the book and display the fine or appropriate message.

#include <math.h>

void main()

{

int d;

printf("Enter number of days late: ");

scanf("%d",&d);

if(d<=5)

printf("Your fine is %.2f.",d\*.50);

else if(d<=10)

printf("Your fine is %.2f.",2.50+(d-5)\*1.00);

else

printf("Your fine is %.2f.",7.50+(d-10)\*5);

if(d>30)

printf("\nYOUR MEMBERSHIP IS CANCELLED!");

}

OUTPUT:

Graphical user interface, application

Description automatically generated

Q18. Write a program to find the factorial of any number.

#include <stdio.h>

int main(void) {

int n;int f=1;

printf("Enter number:");

scanf("%d",&n);

for(int i=n;i>0;--i)

f\*=i;

printf("The factorial of %d is %d.",n,f) ;

return 0;

}

OUTPUT:

Graphical user interface

Description automatically generated with medium confidence

Q19. Write a program to print Fibonacci sequence

0 1 1 2 3 5 8 13…… N terms and prints the sum of sequence.

#include <stdio.h>

int main(void) {

int n,n1=0,n2=1,n3,sum=1;

printf("Enter number of terms to be displayed:\n");

scanf("%d",&n);

printf("%d,%d",n1,n2);

for(int i=2;i<n;++i)

{

n3=n1+n2;

sum+=n3;

printf(",%d",n3);

n1=n2;

n2=n3;

}

printf("\nSum of these numbers: %d",sum);

}

OUTPUT:

Text

Description automatically generated

Q20. Write a program in C to accept an integer numbers and find sum of digits.

#include <stdio.h>

int sum=0;

int SoD(int n)

{

if(n!=0)

{

sum+=n%10;

SoD(n/10);

}

return sum;

}

void main()

{

int n;

printf("Enter number: ");

scanf("%d",&n);

printf("Sum of Digits of %d is %d. ",n,SoD(n));

}

OUTPUT:

A picture containing text

Description automatically generated

Q21. Write a program in C to accept an integer numbers and find reverse of this number and check this number for palindrome.

#include <stdio.h>

int reverse(int n)

{

static int sum=0,rem;

if(n!=0)

{

rem=n%10;

sum=sum\*10+rem;

reverse(n/10);

}

return sum;

}

void main()

{

int n;

printf("Enter number: ");

scanf("%d",&n);

if(n==reverse(n))

printf("%d is a Palindrome number.",n);

else

printf("%d is not a Palindrome number.",n);

}

OUTPUT:

Text

Description automatically generated

Q22. Write a program in C to accept an integer numbers and to check a number is Armstrong or not.

#include <math.h>

#include <stdio.h>

int main() {

int n, t, r, a = 0;

float ans = 0.0;

printf("Enter an integer: ");

scanf("%d", &n);

t=n;

for (t = n; t != 0; ++a)

t /= 10;

for (t = n; t != 0; t /= 10)

{

r = t % 10;

ans += pow(r, a);

}

if ((int)ans == n)

printf("%d is an Armstrong number.", n);

else

printf("%d is not an Armstrong number.", n);

return 0;

}

OUTPUT:

A picture containing text

Description automatically generated

Q23. Write a program in C to accept an integer numbers and to check a number is Perfect or not.

#include <stdio.h>

int main()

{

int n,r, sum= 0;

printf("Enter number: ");

scanf("%d", &n);

for (int i=1;i<=n/2;++i)

if(n%i==0)

sum+=i;

if(sum==n)

printf("%d is a Perfect Number.",n);

else

printf("%d is not a Perfect Number",n);

}

OUTPUT:

Graphical user interface, application, website

Description automatically generated

Q24. Write a program to find the sum of following series:

S = 2+4+6+8+……………N terms.

#include <stdio.h>

int main()

{

int n,sum= 0;

printf("Enter number of terms to be added : ");

scanf("%d", &n);

for (int i=0,k=2;i<n;++i,k+=2)

sum+=k;

printf("Sum of the series: %d",sum);

}

OUTPUT:

Graphical user interface, application, website

Description automatically generated

Q25. Write a program to check a number whether it is prime number or not.

#include <stdio.h>

int main(void) {

int n;int f=0;

printf("Enter number:");

scanf("%d",&n);

for(int i=2;i<=n/2;++i)

{

if(n%i==0)

f=1;

}

if(f==0)

printf("%d is a Prime number.",n);

else

printf("%d is not a Prime number.",n);

}

OUTPUT:

Graphical user interface, application

Description automatically generated

Q26. Write a program to find the sum of following series:

1 – 1/2 + 1/3 – 1/4 + 1/5 - …… up to n terms.

#include <stdio.h>

int main ()

{

int n;float sum= 0.0;

printf("Enter number of terms to be added : ");

scanf("%d", &n);

for (int i=1;i<=n;++i)

{

if(i%2==0)

sum-=1.0/i;

else

sum+=1.0/i;

}

printf("Sum of the series: %f",sum);

}

OUTPUT:

Graphical user interface, text

Description automatically generated

Q27. Write a program to find the sum of following series:

1! + 2! + 3! + 4! + ….. + n!

#include <stdio.h>

int fact(int a)

{

if(a==0||a==1)

return 1;

else

return a\*fact(a-1);

}

int main()

{

int n,sum= 0.0;

printf("Enter number of terms to be added : ");

scanf("%d", &n);

for (int i=1;i<=n;++i)

{

sum+=fact(i);

}

printf("Sum of the series: %d",sum);

}

OUTPUT:

Graphical user interface, text

Description automatically generated

Q28. Write a program to find the sum of following series:

S = -13 + 33 - 53 + 73 – 93 + 113 - ……. N terms.

#include <stdio.h>

int main()

{

int n,sum= 0;

printf("Enter number of terms to be added : ");

scanf("%d", &n);

for (int i=1,k=1;i<=n;++i,k+=2)

{

if(i%2!=0)

sum-=k\*k\*k;

else

sum+=k\*k\*k;

}

printf("Sum of the series: %d",sum);

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

Q29. Write a program to find the sum of following series:

S = 1/1! + 2/2! + 3/3! + ………….. n terms.

#include <stdio.h>

float fact(int a)

{

if(a==0||a==1)

return 1.0;

else

return a\*fact(a-1);

}

int main()

{

int n;float sum= 0.0;

printf("Enter number of terms to be added : ");

scanf("%d", &n);

for (int i=1;i<=n;++i)

{

sum+=i/fact(i);

}

printf("Sum of the series: %f",sum);

}

OUTPUT:

Text

Description automatically generated

Q30. Write a program to convert binary number to decimal number.

#include <stdio.h>

#include <math.h>

int main()

{

char c[100];int n=-1,dec=0,k=0;

printf("Enter number in Binary: ");

scanf("%s", &c);

for (int i=0;i<100;++i)

{

if(c[i]=='\0')

break;

else

++n;

}

for(int i=n;i>=0;--i)

dec+=(c[i]-48)\*(int)pow(2,k++);

printf("The Decimal equivalent of the entered binary is: %d",dec);

}

OUTPUT:

Text

Description automatically generated

Q31. Write a program to find the sum of following series:

S = 14 + 34 + 54 + 74 + ……………. 100 terms

#include <stdio.h>

int main()

{

int sum= 0;

for (int i=1,k=1;i<=100;++i,k+=2)

sum+=k\*k\*k\*k;

printf("Sum of the series: %d",sum);

}

OUTPUT:

Graphical user interface, text, application, website

Description automatically generated

Q32. Write a program in C to print the given pattern.

|  |  |  |
| --- | --- | --- |
| \* | \* | \* |
| \* | \* | \* |
| \* | \* | \* |

#include <stdio.h>

int main()

{

for(int i=0;i<3;++i)

{

for(int j=0;j<3;++j)

printf("\*\t");

printf("\n");

}

}

OUTPUT:

Graphical user interface, text

Description automatically generated

Q33. Write a program in C to print the given pattern.

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| 1 | 2 | 3 |
| 1 | 2 | 3 |

#include <stdio.h>

int main()

{

for(int i=0;i<3;++i)

{

for(int j=1;j<=3;++j)

printf("%d\t",j);

printf("\n");

}

}

OUTPUT:

Text

Description automatically generated

Q34. Write a program in C to print the given pattern.

|  |  |  |
| --- | --- | --- |
| 1 | 1 | 1 |
| 2 | 2 | 2 |
| 3 | 3 | 3 |

#include <stdio.h>

int main()

{

for(int i=1;i<=3;++i)

{

for(int j=1;j<=3;++j)

printf("%d\t",i);

printf("\n");

}

}

OUTPUT:

Text

Description automatically generated

Q35. Write a program in C to print the given pattern.

|  |  |  |
| --- | --- | --- |
| 3 | 2 | 1 |
| 3 | 2 | 1 |
| 3 | 2 | 1 |

#include <stdio.h>

int main()

{

for(int i=1;i<=3;++i)

{

for(int j=3;j>=1;--j)

printf("%d\t",j);

printf("\n");

}

}

OUTPUT:

Text

Description automatically generated

Q36. Write a program in C to print the given pattern.

|  |  |  |
| --- | --- | --- |
| 3 | 3 | 3 |
| 2 | 2 | 2 |
| 1 | 1 | 1 |

#include <stdio.h>

int main()

{

for(int i=3;i>=1;--i)

{

for(int j=3;j>=1;--j)

printf("%d\t",i);

printf("\n");

}

}

OUTPUT:

Graphical user interface, text

Description automatically generated

Q37. Write a program in C to print the given pattern.



#include <stdio.h>

int main()

{

for(int i=1;i<=3;++i)

{

for(int j=1;j<=i;++j)

printf("\*\t");

printf("\n");

}

}

OUTPUT:

Text

Description automatically generated

Q38. Write a program in C to print the given pattern.



#include <stdio.h>

int main()

{

for(int i=1;i<=3;++i)

{

for(int j=1;j<=i;++j)

printf("%d\t",j);

printf("\n");

}

}

OUTPUT:

Text

Description automatically generated

Q39. Write a program in C to print the given pattern.



#include <stdio.h>

int main()

{

for(int i=1;i<=3;++i)

{

for(int j=1;j<=i;++j)

printf("%d\t",i);

printf("\n");

}

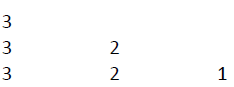
}

OUTPUT:

Text

Description automatically generated

Q40. Write a program in C to print the given pattern.



#include <stdio.h>

int main()

{

for(int i=3;i>=1;--i)

{

for(int j=3;j>=i;--j)

printf("%d\t",j);

printf("\n");

}

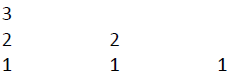
}

OUTPUT:

Graphical user interface, text

Description automatically generated

Q41. Write a program in C to print the given pattern.



#include <stdio.h>

int main()

{

for(int i=3;i>=1;--i)

{

for(int j=3;j>=i;--j)

printf("%d\t",i);

printf("\n");

}

}

OUTPUT:

Graphical user interface, text

Description automatically generated

Q42. Write a program in C to print the given pattern.



#include <stdio.h>

int main()

{

int i, s, k = 0;

for (i = 1; i <= 5; ++i, k = 0)

{

for (s = 1; s <= 5 - i; ++s)

{

printf("\t");

}

while (k != 2 \* i - 1) {

printf("\*\t");

++k;

}

printf("\n");

}

}

OUTPUT: A picture containing chart

Description automatically generated

Q43. Write a program in C to print the given pattern.



#include <stdio.h>

void main()

{

int i,j;

for(i=0;i<=5;i++)

{

for(j=1;j<=5-i;j++)

printf("\t");

for(j=1;j<=i;j++)

printf("%d\t",j);

for(j=i-1;j>=1;j--)

printf("%d\t",j);

printf("\n");

}

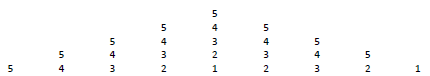
}

OUTPUT:

Text

Description automatically generated with medium confidence

Q44. Write a program in C to print the given pattern.



#include <stdio.h>

void main()

{

int i=1,j,k,l,m;

for(i=1,m=5; i<=5,m>=1; i++,m--)

{

for(j=5-i; j>=1; j--)

printf("\t");

for(k=5; k>=6-i; k--)

printf("%d\t",k);

for(l=m+1; l<=5;l++)

printf("%d\t",l);

printf("\n");

}

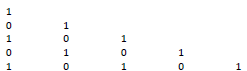
}

OUTPUT:

A picture containing text, black, screen, dark

Description automatically generated

45. Write a program in C to print the given pattern.



#include <stdio.h>

void main()

{

int i,j;

for(i=0;i<=6;i++)

{

for(j=1;j<i;j++)

{

if((i+j)%2==0)

{

printf("0\t");

}

else

{

printf("1\t");

}

}

printf("\n");

}

}

OUTPUT:

A screenshot of a computer

Description automatically generated with medium confidence

Q46.Write a program to print all prime numbers <= a given number.

#include <stdio.h>

#include <stdbool.h>

bool prime(int n)

{

int f=0;

for(int i=2;i<=n/2;++i)

{

if(n%i==0)

f=1;

}

if(f==0)

return true;

else

return false;

}

int main()

{

int n;

printf("Enter limit under which prime numbers are to be printed: ");

scanf("%d",&n);

for(int i=2;i<=n;++i)

{

if(prime(i))

printf("%d ",i);

}

}

OUTPUT:

Text

Description automatically generated

Q47. Write a program to convert Decimal number to Binary Number.

#include <stdio.h>

int main()

{

int n;

printf("Enter decimal number: ");

scanf("%d",&n);

int bin[32];

int i = 0;

while (n > 0)

{

bin[i] = n % 2;

n = n / 2;

i++;

}

printf("Binary equivalent for the given decimal number: ");

for (int j = i - 1; j >= 0; j--)

printf("%d",bin[j]);

}

OUTPUT:

Graphical user interface, text, website

Description automatically generated

Q48. Write a program to find product, sum, average, max and min from a list of n numbers.

#include <stdio.h>

int main()

{

int n,p=1;float s=0.0;

printf("How many elements you want to enter: ");

scanf("%d",&n);

int arr[n];

for(int i=0;i<n;++i)

{

printf("Enter element %d: ",i+1);

scanf("%d",&arr[i]);

p\*=arr[i];

s+=arr[i];

}

for (int c = 0 ; c < n - 1; c++)

{

for (int d = 0 ; d < n - c - 1; d++)

{

if (arr[d] > arr[d+1])

{

int swap = arr[d];

arr[d] = arr[d+1];

arr[d+1] = swap;

}

}

}

printf("Product of elements: %d\nSum of elements: %d\nAverage of elements: %f\nMaximum Value: %d\nMinimum Value: %d",p,(int)s,s/n,arr[n-1],arr[0]);

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

Q49. Write a program in C to display the index of smallest and largest element in 10 integers.

#include <stdio.h>

int main()

{

int a[10];

for(int i=0;i<10;++i)

{

printf("Enter element %d: ",i);

scanf("%d",&a[i]);

}

int s=0,h=0;

for(int i=1;i<10;++i)

{

if(a[i]>a[h])

h=i;

else if(a[i]<a[s])

s=i;

}

printf("Index of highest number: %d\nIndex for lowest number: %d",h,s);

}

OUTPUT:

Graphical user interface, text

Description automatically generated

Q50. Write a program in C to display the index of smallest and largest element in 3 X 4 matrix of integers.

#include <stdio.h>

void main()

{

int a[3][4];

for(int i=0;i<3;++i)

{

for(int j=0;j<4;++j)

{

printf("Enter element: ");

scanf("%d",&a[i][j]);

}

}

int h=0, hh=0, s=0, ss=0;

for(int i=0;i<3;++i)

{

for(int j=0;j<4;++j)

{

if(a[i][j]>a[h][hh])

{h=i;hh=j;}

else if(a[i][j]<a[h][hh])

{s=i;ss=j;}

}

}

printf("Index of highest number: (%d,%d)\nIndex of smallest number: (%d,%d)",h,hh,s,ss);

}

OUTPUT:Text

Description automatically generated

Q51. Write a program in C that accepts N\*N matrix as input and print transpose of this matrix.

#include <stdio.h>

void main()

{

int n;

printf("Enter size: ");

scanf("%d",&n);

int a[n][n];

for(int i=0;i<n;++i)

{

for(int j=0;j<n;++j)

{

printf("Enter element: ");

scanf("%d",&a[i][j]);

}

}

printf("TRANSPOSE OF THE MATRIX IS:\n");

for(int i=0;i<n;++i)

{

for(int j=0;j<n;++j)

printf("%d\t",a[j][i]);

printf("\n");

}

}

OUTPUT:

A picture containing graphical user interface

Description automatically generated

Q52. Write a program to accept two matrices of some order. (Order must be given by user) find out the sum of these matrices and print the sum of matrices.

#include <stdio.h>

void main()

{

int m,n;

printf("Enter size: ");

scanf("%d %d",&m,&n);

int a[m][n],b[m][n];

printf("ENTER ELEMENTS FOR MATRIX 1\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

{

printf("Enter element : ");

scanf("%d",&a[i][j]);

}

}

printf("\nENTER ELEMENTS FOR MATRIX 2\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

{

printf("Enter element : ");

scanf("%d",&b[i][j]);

}

}

printf("SUM OF THE MATRICES IS:\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

printf("%d\t",a[i][j]+b[i][j]);

printf("\n");

}

}

OUTPUT:

Text

Description automatically generated

Q53. Write a program to find out the product/Multiplication of two matrices and print the product matrix. (order of matrices must be given by user).

#include <stdio.h>

void main()

{

int m,n;

printf("Enter size: ");

scanf("%d %d",&m,&n);

int a[m][n],b[m][n],c[m][n];

printf("ENTER ELEMENTS FOR MATRIX 1\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

{

printf("Enter element : ");

scanf("%d",&a[i][j]);

}

}

printf("\nENTER ELEMENTS FOR MATRIX 2\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

{

printf("Enter element : ");

scanf("%d",&b[i][j]);

}

}

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

{

c[i][j]=0;

for(int k=0;k<n;++k)

c[i][j]+=a[i][k]\*b[k][j];

}

}

printf("\nPRODUCT OF THE MATRICES:\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

printf("%d\t",c[i][j]);

printf("\n");

}

}

OUTPUT:

Text

Description automatically generated

Q54. Write a program to accept two matrices of some order. (Order must be given by user) find out the subtraction of these matrices and print the sum of matrices.

#include <stdio.h>

void main()

{

int m,n;

printf("Enter size: ");

scanf("%d %d",&m,&n);

int a[m][n],b[m][n];

printf("ENTER ELEMENTS FOR MATRIX 1\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

{

printf("Enter element : ");

scanf("%d",&a[i][j]);

}

}

printf("\nENTER ELEMENTS FOR MATRIX 2\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

{

printf("Enter element : ");

scanf("%d",&b[i][j]);

}

}

printf("DIFFERENCE OF THE MATRICES IS:\n");

for(int i=0;i<m;++i)

{

for(int j=0;j<n;++j)

printf("%d\t",a[i][j]-b[i][j]);

printf("\n");

}

}

OUTPUT:

Text

Description automatically generated

Q55. Write a C Program to implement Simple Calculator (Addition, Subtraction, Multiplication, Division) using the concept of function.

#include <stdio.h>

void add(double a,double b)

{

printf("%.2lf + %.2lf = %.2lf", a, b, a + b);

}

void sub(double a,double b)

{

printf("%.2lf - %.2lf = %.2lf", a, b, a - b);

}

void pro(double a,double b)

{

printf("%.2lf \* %.2lf = %.2lf", a, b, a \* b);

}

void div(double a,double b)

{

printf("%.2lf / %.2lf = %.2lf", a, b, a / b);

}

int main()

{

char op;

double a,b;

printf("Enter an operator (+, -, \*,/): ");

scanf("%c", &op);

printf("Enter two operands: ");

scanf("%lf %lf", &a, &b);

switch (op)

{

case '+': add(a,b);

break;

case '-': sub(a,b);

break;

case '\*': pro(a,b);

break;

case '/': div(a,b);

break;

default : printf("Error! operator is not correct");

}

}

OUTPUT:

Graphical user interface, text, application

Description automatically generated

Q56. Write a C Program to swap two values using function.

#include <stdio.h>

void swap(int a,int b)

{

a=a+b;

b=a-b;

a=a-b;

printf("Swapped: %d %d",a,b);

}

int main(void) {

int a,b;

printf("Enter two numbers: ");

scanf("%d",&a);

scanf("%d",&b);

swap(a,b);

return 0;

}

OUTPUT:

Text

Description automatically generated

Q57. Write a C Program to Calculate the factorial of a number using function.

#include <stdio.h>

int fact(int n)

{

int f=1;

if(n==0||n==1)

return 1;

else

{

for(int i=n;i>0;--i)

f\*=i;

return f;

}

}

int main()

{

int n;

printf("Enter number: ");

scanf("%d",&n);

printf("Factorial of %d is: %d",n,fact(n));

}

OUTPUT:

Graphical user interface, text

Description automatically generated with medium confidence

Q58. Write a C Program to Calculate the factorial of a number using recursion.

#include <stdio.h>

int fact(int n)

{

if(n==0||n==1)

return 1;

else

return n\*fact(n-1);

}

int main()

{

int n;

printf("Enter number: ");

scanf("%d",&n);

printf("Factorial of %d is: %d",n,fact(n));

}

OUTPUT:

Graphical user interface, text

Description automatically generated