MODULE:3

SE-FUNDAMENTALS OF PROGRAMMING

* Basic Logic Program

**1. Display This Information using printf**

**a. Your Name**

**b. Your Birth date**

**c. Your Age**

**d. Your Address**

ANS: #include<stdio.h>

main()

{

printf("\n My name is Varun");

printf("\n My age is 17");

printf("\n My Birthdate is 3 September");

printf("\n My address is Naiya Apartment ");

}

**2. Write a program to make Simple calculator (to make addition, subtraction, multiplication, division and modulo)**

ANS: #include<stdio.h>

main()

{

int a,b;

printf("Enter a:");

scanf("%d",&a);

printf("Enter b:");

scanf("%d",&b);

printf("\n Addition of a and b: %d",a+b);

printf("\n Subtraction of a and b:%d",a-b);

printf("\n Multiplication of a and b:%d:",a\*b);

printf("\n Division of a and b: %d",a/b);

printf("\n Modulo of a and b: %d",a%b);

}

**3. WAP to Find Area and Circumference of Circle**

ANS: #include<stdio.h>

main()

{

float r,pi=3.14;

printf("Enter r:");

scanf("%f",&r);

printf("\n Area of circle:%f",pi\*r\*r);

printf("\n Circumference of circle:%f",2\*pi\*r);

}

**4. Find Area of Square formula: a = a2**

ANS: #include<stdio.h>

main()

{

float a;

printf("Enter a:");

scanf("%f",&a);

printf("\n Area of square:%f",a\*a);

}

**5. Find Area of Cube formula: a = 6a2**

ANS: #include<stdio.h>

main()

{

float a;

printf("Enter a:");

scanf("%f",&a);

printf("\n Area of cube:%f",6\*a\*a);

}

**6. Find area of Triangle Formula: A = 1/2 × b × h**

ANS: #include<stdio.h>

main()

{

float b,h;

printf("Enter base:");

scanf("%f",&b);

printf("Enter height:");

scanf("%f",&h);

printf("\n Area of triangle:%f",0.5\*b\*h);

}

**7. Find area of Rectangle Formula: A=wl**

ANS: #include<stdio.h>

main()

{

float w,l;

printf("Enter width:");

scanf("%f",&w);

printf("Enter length:");

scanf("%f",&l);

printf("\n Area of rectangle:%f",w\*l);

}

**8. Find circumference of Rectangle formula: C = 4 \* a**

ANS: #include<stdio.h>

main()

{

float a;

printf("Enter a side of rectangle:");

scanf("%f",&a);

printf("\n Circumference of rectangle:%f",4\*a);

}

**9. Find circumference of Triangle formula: triangle = a + b + c**

ANS: #include<stdio.h>

main()

{

float a,b,c;

printf("Enter side a:");

scanf("%f",&a);

printf("Enter side b:");

scanf("%f",&b);

printf("Enter side c:");

scanf("%f",&c);

printf("\n Circumference of triangle:%f",a+b+c);

}

**10.find the area of a rectangular prism formula: A=2(wl+hl+hw)**

ANS: #include<stdio.h>

main()

{

float l,w,h;

printf("Enter length:");

scanf("%f",&l);

printf("Enter width:");

scanf("%f",&w);

printf("Enter height:");

scanf("%f",&h);

printf("\n Circumference of rectangular prism:%f",2\*(w\*l+h\*l+h\*w));

}

**11.Find circumference of square formula : C = 4 \* a**

ANS: #include<stdio.h>

main()

{

float a;

printf("Enter side a:");

scanf("%f",&a);

printf("\n Circumference of square:%f",4\*a);

}

**12. Accept number of students from user. I need to give 5 apples to each student. How many apples are required?**

ANS: #include <stdio.h>

int main()

{

int num\_of\_students;

int apples\_per\_student=5;

int total\_apples;

printf("Enter the number of students: ");

scanf("%d", &num\_of\_students);

total\_apples = num\_of\_students \* apples\_per\_student;

printf("The total number of apples required is: %d\n", total\_apples);

return 0;

}

**13. Find character value from ascii in c**

ANS: #include <stdio.h>

int main()

{

int asciicode;

char character;

printf("Enter an ASCII code: ");

scanf("%d", &asciicode);

character=(char)asciicode;

printf("The character for ASCII code is '%c'\n",asciicode,character);

return 0;

}

**14.Find ascii value of given number**

ANS: #include <stdio.h>

int main()

{

int asciivalue;

char character;

printf("Enter a character: ");

scanf("%c",&character);

asciivalue=(int)character;

printf("The ASCII value is %d\n",character,asciivalue);

return 0;

}

**15.Convert school’s name in abbreviated form**

ANS: #include <stdio.h>

#include<string.h>

int main()

{

char schoolName[100];

char abbreviation[100];

int index=0,i=0;

printf("Enter the full name of the school: ");

gets(schoolName);

for(i=0;schoolName[i]!='\0';i++)

{

if (i==0||schoolName[i-1]==' ')

{

abbreviation[index]=schoolName[i];

index++;

}

}

abbreviation[index]='\0';

printf("Abbreviation: %s\n", abbreviation);

return 0;

}

**16.Convert country’s name in abbreviate form**

ANS: #include <stdio.h>

#include<string.h>

int main()

{

char CountryName[100];

char abbreviation[100];

int index=0,i=0;

printf("Enter the full name of the country: ");

gets(CountryName);

for(i=0;CountryName[i]!='\0';i++)

{

if (i==0||CountryName[i-1]==' ')

{

abbreviation[index]=CountryName[i];

index++;

}

}

abbreviation[index]='\0';

printf("Abbreviation: %s\n", abbreviation);

return 0;

}

**17.Calculate person’s insurance premium based on salary**

ANS: #include <stdio.h>

int main()

{

float salary, premium;

float PREMIUM\_RATE = 0.05;

printf("Enter the salary: ");

scanf("%f", &salary);

premium = salary \* PREMIUM\_RATE;

printf("The insurance premium based on a salary of %f is: %f\n", salary, premium);

return 0;

}

**18.Calculate person’s Annual salary**

ANS: #include <stdio.h>

int main()

{

float monthly\_salary, annual\_salary;

printf("Enter the monthly salary:");

scanf("%f", &monthly\_salary);

annual\_salary=monthly\_salary\*12;

printf("The annual salary based on a monthly salary of %fis:%f\n",monthly\_salary, annual\_salary);

return 0;

}

**20. Accept monthly salary from the user and deduct 10% insurance premium,10% loan instalment find out of remaining salary**

ANS: #include <stdio.h>

int main()

{

float monthlySalary;

float insurancePremium, loanInstallment, remainingSalary;

printf("Enter your monthly salary: ");

scanf("%f", &monthlySalary);

insurancePremium = 0.10 \* monthlySalary;

loanInstallment = 0.10 \* monthlySalary;

remainingSalary = monthlySalary - (insurancePremium + loanInstallment);

printf("Insurance Premium: %.2f\n", insurancePremium);

printf("Loan Installment: %.2f\n", loanInstallment);

printf("Remaining Salary: %.2f\n", remainingSalary);

return 0;

}

**19.Calculate compound interest**

ANS: #include<stdio.h>

#include<math.h>

int main()

{

float principal,rate,amount;

int years;

printf("Enter the principal amount: ");

scanf("%f",&principal);

printf("Enter the annual interest rate: ");

scanf("%f",&rate);

printf("Enter the number of years: ");

scanf("%d",&years);

amount=principal\*powf(1+rate/100,years);

printf("The amount after %d years is: %f\n",years,amount);

return 0;

}

**20. Accept monthly salary from the user and deduct 10% insurance premium,10% loan installment find out of remaining salary.**

ANS: #include <stdio.h>

int main()

{

float salary,insuranceDeduction,loanDeduction,totalDeductions,remainingSalary;

printf("Enter your monthly salary: ");

scanf("%f",&salary);

insuranceDeduction=salary\*0.10;

loanDeduction=salary\*0.10;

totalDeductions=insuranceDeduction+loanDeduction;

remainingSalary=salary-totalDeductions;

printf("Remaining salary after deductions: %f\n",remainingSalary);

return 0;

}

**21. Accept 2 numbers from user and swap 2 numbers with using 3rd variableand without using 3rd variable**

ANS: With using third variable

#include<stdio.h>

main()

{

int a,b,temp;

printf("enter no 1:");

scanf("%d",&a);

printf("enter no 2:");

scanf("%d",&b);

temp=a;

a=b;

b=temp;

printf("\nAfter swapping value of a is: %d",a);

printf("\nAfter swapping value of b is: %d",b);

}

\*  **Without using third variable**

#include<stdio.h>

main()

{

int a,b;

printf("enter no 1:");

scanf("%d",&a);

printf("enter no 2:");

scanf("%d",&b);

a=a+b;

b=a-b;

a=a-b;

printf("\nAfter swapping value of a is: %d",a);

printf("\nAfter swapping value of b is: %d",b);

}

**22. Calculate compound interest (Compound Interest formula:**

**a. Formula to calculate compound interest annually is given by: Amount= P(1 + R/100)t**

**b. Compound Interest = Amount – P**

ANS: #include<stdio.h>

#include<math.h>

int main()

{

float principal, rate, amount, compoundinterest;

int years;

printf("Enter the principal amount: ");

scanf("%f",&principal);

printf("Enter the annual interest rate: ");

scanf("%f",&rate);

printf("Enter the number of years: ");

scanf("%d",&years);

amount=principal\*powf(1+rate/100,years);

compoundinterest=amount-principal;

printf("The amount after %d years is: %f\n",years,amount);

printf("The compound interest is: %f\n",compoundinterest);

return 0;

}

**23. WAP to calculate swap 2 numbers with using of multiplication and division.**

ANS:#include <stdio.h>

int main()

{

float a, b;

printf("Enter the first number (a): ");

scanf("%f", &a);

printf("Enter the second number (b): ");

scanf("%f", &b);

a = a \* b;

b = a / b;

a = a / b;

printf("After swapping:\n");

printf("First number (a): %f\n", a);

printf("Second number (b): %f\n", b);

return 0;

}

**24.Accept 5 employees name and salary and count average and total salary**

ANS: #include <stdio.h>

int main()

{

float emp1, emp2, emp3, emp4, emp5;

float salary1, salary2, salary3, salary4, salary5;

float total\_salary, average\_salary;

printf("Enter salary of emp1: ");

scanf("%f", &salary1);

printf("Enter salary of emp2: ");

scanf("%f", &salary2);

printf("Enter salary of emp3: ");

scanf("%f", &salary3);

printf("Enter salary of emp4: ");

scanf("%f", &salary4);

printf("Enter salary of emp5: ");

scanf("%f", &salary5);

total\_salary=salary1+salary2+salary3+salary4+salary5;

average\_salary=total\_salary/5;

printf("\nTotal salary is:%f",total\_salary);

printf("\nAverage salary is: %f",average\_salary);

return 0;

}

**25.Accept 5 expense from user and find average of expense**

ANS: #include <stdio.h>

int main()

{

float expense1, expense2, expense3, expense4, expense5;

float total\_expense, average\_expense;

printf("Enter expense1: ");

scanf("%f", &expense1);

printf("Enter expense2: ");

scanf("%f", &expense2);

printf("Enter expense3: ");

scanf("%f", &expense3);

printf("Enter expense4: ");

scanf("%f", &expense4);

printf("Enter expense5: ");

scanf("%f", &expense5);

total\_expense=expense1+expense2+expense3+expense4+expense5;

average\_expense=total\_expense/5;

printf("\nTotal expense is:%f",total\_expense);

printf("\nAverage expense is: %f",average\_expense);

return 0;

}

**26.Convert temperature Fahrenheit to Celsius**

ANS: #include <stdio.h>

int main()

{

int c,f;

printf("Enter farenheit:");

scanf("%d",&f);

c=(f-32)\*5/9;

printf("Temperature in celcius is:%d",c);

return 0;

}

**27.Convert days into months**

ANS: #include <stdio.h>

int main()

{

int days;

float month;

printf("Enter days:");

scanf("%d",&days);

month=days/31;

printf("Month is:%f",month);

return 0;

}

**28.Convert years into days and months**

ANS: #include <stdio.h>

int main()

{

int years;

int totalDays;

int totalMonths;

printf("Enter the number of years: ");

scanf("%d", &years);

totalDays = years \* 365;

totalMonths = years \* 12;

printf("Total Days: %d\n", totalDays);

printf("Total Months: %d\n", totalMonths);

return 0;

}

**29.Convert minutes into seconds and hours**

ANS: #include <stdio.h>

int main()

{

int minutes;

int seconds;

int hours;

printf("Enter minutes: ");

scanf("%d", &minutes);

seconds = minutes\*60;

hours = minutes/60;

printf("seconds: %d\n",seconds);

printf("hours: %d\n",hours);

return 0;

}

**30. WAP to convert years into days and days into years**

ANS: #include <stdio.h>

int main()

{

int years;

int Days;

printf("Enter the number of years: ");

scanf("%d", &years);

Days = years \* 365;

printf("Days: %d\n", Days);

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

scanf("%d",&Days);

years = Days/365;

printf("Years: %d\n", years);

return 0;

}

**31. Convert kilometres into meters**

ANS: #include <stdio.h>

int main()

{

int km;

int m;

printf("Enter kilometer: ");

scanf("%d", &km);

m=km\*1000;

printf("metre: %d\n",m);

return 0;

}

**32. Accept 2 numbers and find out its sum check it size**

ANS: #include <stdio.h>

int main()

{

int num1, num2, sum=0;

printf("Enter num1: ");

scanf("%d", &num1);

printf("Enter num2: ");

scanf("%d", &num2);

sum=num1+num2;

printf("sum is: %d\n",sum);

return 0;

}

**33. C Program to Read Integer and Print First Three Powers (N^1, N^2, N^3)**

ANS: #include <stdio.h>

int main()

{

int number;

int power1, power2, power3;

printf("Enter an number: ");

scanf("%d", &number);

power1 = number;

power2 = number \* number;

power3 = number \* number \* number;

printf("N^1: %d\n", power1);

printf("N^2: %d\n", power2);

printf("N^3: %d\n", power3);

return 0;

}

* **Conditional Logic Programs:**

1. **Write a C program to accept two integers and check whether they are equal or not**

ANS: #include <stdio.h>

int main()

{

int num1, num2;

printf("enter num1:");

scanf("%d",&num1);

printf("enter num2:");

scanf("%d",&num2);

if(num1==num2)

{

printf("number are equal");

}

else

{

printf("number are not equal");

}

return 0;

}

1. **Write a C program to read the value of an integer m and display the value of n is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0**

ANS: #include <stdio.h>

int main()

{

int m,n=1;

printf("enter m:");

scanf("%d",&m);

if(m>0)

{

printf("n=1");

}

else if(m==0)

{

printf("n=0");

}

else

{

printf("n=-1");

}

return 0;

}

1. **WAP to check if the given year is a leap year or not.**

ANS: #include <stdio.h>

int main()

{

int year;

printf("enter year:");

scanf("%d",&year);

if(year%4==0)

{

printf("year is leap year");

}

else

{

printf("year is not leap year");

}

return 0;

}

1. **WAP to make simple calculator (operation include Addition, Subtraction, Multiplication, Division, modulo) using conditional statement**

ANS: #include <stdio.h>

int main()

{

char sign;

float num1, num2;

float result;

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

scanf("%c", &sign);

printf("Enter two numbers (num1 num2): ");

scanf("%f %f", &num1, &num2);

if (sign == '+')

{

result = num1 + num2;

printf("Result: %f\n",result);

}

else if (sign == '-')

{

result = num1 - num2;

printf("Result: %f\n",result);

}

else if (sign == '\*')

{

result = num1 \* num2;

printf("Result: %f\n",result);

}

else if (sign == '/')

{

result = num1/num2;

printf("Result: %f\n",result);

}

else if (sign == '%')

{

result = (int)num1 % (int)num2;

printf("Result: %f\n",result);

}

return 0;

}

1. **Check Number Is Positive or Negative**

ANS: #include <stdio.h>

int main()

{

int num;

printf("enter number:");

scanf("%d",&num);

if(num>0)

{

printf("number is positive");

}

else

{

printf("number is negative");

}

return 0;

}

1. **Find the Character Is Vowel or Not**

ANS: #include<stdio.h>

int main()

{

char ch;

printf("Enter a character: ");

scanf("%c", &ch);

if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')

{

printf("%c is a vowel\n",ch);

}

else

{

printf("%c is not a vowel\n",ch);

}

return 0;

}

1. **Accept marks from user and check pass or fail**

ANS: #include <stdio.h>

int main()

{

int marks;

printf("Enter marks:");

scanf("%d",&marks);

if(marks>=50)

{

printf("Student is pass");

}

else

{

printf("Student is Fail");

}

return 0;

}

1. **WAP to accept the height of a person in centimetres and categorize the person according to their height.**

ANS: #include <stdio.h>

int main()

{

int height;

printf("Enter height:");

scanf("%d",&height);

if(height<150)

{

printf("Person has short height");

}

else if(height<=180)

{

printf("Personn has average height");

}

else

{

printf("Person has tall height");

}

return 0;

}

**9. C Program to Check Uppercase or Lowercase or Digit or SpecialCharacter**

ANS: #include <stdio.h>

int main()

{

char ch;

printf("Enter Character:");

scanf("%c",&ch);

if(ch>='A'&&ch<='Z')

{

printf("Character is uppercase");

}

else if(ch>='a'&&ch<='z')

{

printf("Character is lowercase");

}

else if(ch>='0'&&ch<='9')

{

printf("Character is in digits");

}

else

{

printf("Special Characters");

}

return 0;

}

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

ANS: #include <stdio.h>

int main()

{

int num;

printf("Enter number:");

scanf("%d",&num);

if(num>0)

{

printf("Number is positive");

}

else if(num<0)

{

printf("Number is negative");

}

else

{

printf("Number is zero");

}

return 0;

}

**11.WAP to find number is even or odd using ternary operator**

ANS: #include <stdio.h>

int main()

{

int number;

printf("Enter an integer: ");

scanf("%d", &number);

(number % 2 == 0) ? printf("%d is even.\n", number) : printf("%d is odd.\n", number);

return 0;

}

**12.WAP to find maximum number among 3 numbers using ternary operator**

ANS: #include<stdio.h>

int main()

{

int a,b,c;

printf("Enter a:\n");

scanf("%d",&a);

printf("Enter b:\n");

scanf("%d",&b);

printf("Enter c:\n");

scanf("%d",&c);

int max = (a > b) ? ((a > c) ? a : c) : ((b > c) ? b : c);

printf("The maximum number is: %d\n",max);

return 0;

}

**13.WAP to find minimum number among 3 numbers using ternary operator**

ANS: #include<stdio.h>

int main()

{

int a,b,c;

printf("Enter a:\n");

scanf("%d",&a);

printf("Enter b:\n");

scanf("%d",&b);

printf("Enter c:\n");

scanf("%d",&c);

int min = (a < b) ? ((a < c) ? a : c) : ((b < c) ? b : c);

printf("The minimum number is: %d\n",min);

return 0;

}

**14.WAP to find the largest of three numbers.**

ANS: #include <stdio.h>

int main()

{

int largest;

int a,b,c;

printf("Enter a:\n");

scanf("%d",&a);

printf("Enter b:\n");

scanf("%d",&b);

printf("Enter a:\n");

scanf("%d",&c);

if(a>b&&a>c)

{

printf("a is largest");

}

else if(b>a&&b>c)

{

printf("b is largest");

}

else

{

printf("c is largest");

}

return 0;

}

**15.Write a C program to determine eligibility for admission to a professionalcourse based on the following criteria Eligibility Criteria : Marks in Maths >=65 and Marks in Phy >=55 and Marksin Chem>=50 and Total in all three subject >=190 or Total in Maths and Physics >=140 ---- Input the marks obtained in Physics :65 Input the marks obtained in Chemistry :51 Input the marks obtained in Mathematics :72 Total marks of Maths, Physics and Chemistry :188 Total marks of Maths and Physics : 137 The candidate is not eligible.**

ANS: #include <stdio.h>

int main()

{

float maths, phy, chem;

float total\_all, total\_maths\_phy;

printf("Enter marks in maths:");

scanf("%f",&maths);

printf("Enter marks in physics:");

scanf("%f",&phy);

printf("Enter marks in chemistry:");

scanf("%f",&chem);

if((maths >= 65 && phy >= 55 && chem >= 50 && total\_all >= 190) ||

(total\_maths\_phy >= 140))

{

printf("student is eligible");

}

else

{

printf("student is not eligible");

}

}

**16.Write a C program to read temperature in centigrade and display a suitable message according to the temperature state below: Temp < 0 then Freezing weather Temp 0-10 then Very Cold weatherTemp 10-20 then Cold weather Temp 20-30 then Normal in Temp 30-40 then Its Hot Temp >=40 then Its Very Hot**

ANS: #include <stdio.h>

int main()

{

int temperature;

printf("Enter temperature in centigrade:");

scanf("%d",&temperature);

if(temperature<0)

{

printf("Freezing Weather");

}

else if(temperature>=0&&temperature<=10)

{

printf("Very cold weather");

}

else if(temperature>=10&&temperature<=20)

{

printf("Cold weather");

}

else if(temperature>=20&&temperature<=30)

{

printf("Normal Weather");

}

else if(temperature>=30&&temperature<=40)

{

printf("Hot Weather");

}

else

{

printf("Very hot weather");

}

}

**17.Write a C program to check whether a triangle can be formed with the given values for the angles.**

ANS: #include <stdio.h>

int main()

{

int angle1, angle2, angle3;

printf("Enter angle1:");

scanf("%d",&angle1);

printf("Enter angle2:");

scanf("%d",&angle2);

printf("Enter angle3:");

scanf("%d",&angle3);

if(angle1+angle2+angle3==180)

{

printf("Triangle can form");

}

else

{

printf("Triangle cannot form");

}

}

**18.Write a C program to calculate profit and loss on a transaction.**

ANS: #include <stdio.h>

int main()

{

float costPrice, sellingPrice, profit, loss;

printf("Enter the cost price: ");

scanf("%f", &costPrice);

printf("Enter the selling price: ");

scanf("%f", &sellingPrice);

if (sellingPrice > costPrice)

{

profit = sellingPrice - costPrice;

printf("Profit: %f\n", profit);

}

else if (sellingPrice < costPrice)

{

loss = costPrice - sellingPrice;

printf("Loss: %f\n", loss);

}

else

{

printf("No Profit No Loss\n");

}

return 0;

}

19.**Write a program in C to calculate and print the electricity bill of a given customer. The customer ID, name, and unit consumed by the user should be captured from the keyboard to display the total amount to be paid to the customer. The charge are as follow: 20. Unit 21. Charge/unit 22. upto 350 23. @1.20 24. 350 and above but less than 600 25. @1.50 26. 600 and above but less than 800 27. @1.80 28. 800 and above 29. @2.00**

ANS: #include <stdio.h>

int main()

{

int customerID;

float unitsConsumed;

char customerName;

float totalAmount;

printf("Enter customer ID: ");

scanf("%d", &customerID);

printf("Enter customer name: ");

scanf(" %c", &customerName);

printf("Enter units consumed: ");

scanf("%f", &unitsConsumed);

if (unitsConsumed <= 350)

{

totalAmount = unitsConsumed \* 1.20;

}

else if (unitsConsumed > 350 && unitsConsumed < 600)

{

totalAmount = unitsConsumed \* 1.50;

}

else if (unitsConsumed >= 600 && unitsConsumed < 800)

{

totalAmount = unitsConsumed \* 1.80;

} else

{

totalAmount = unitsConsumed \* 2.00;

}

printf("\nCustomer ID: %d", customerID);

printf("\nCustomer Name: %c", customerName);

printf("\nUnits Consumed: %.2f", unitsConsumed);

printf("\nTotal Amount: %.2f", totalAmount);

return 0;

}

**30. If bill exceeds Rs. 800 then a surcharge of 18% will be charged and**

**the minimum bill should be of Rs. 256/**

ANS: #include <stdio.h>

int main()

{

float Bill,finalBill;

printf("Enter the bill amount: ");

scanf("%f", &Bill);

if(Bill>800)

{

finalBill=Bill\*1.18;

}

else

{

finalBill=Bill;

}

if(finalBill<256)

{

finalBill=256;

}

printf("The final bill amount is: %f\n",finalBill);

return 0;

}

**31. Write a program in C to read any Month Number in integer and display thenumber of days for this month.**

ANS: #include <stdio.h>

int main()

{

int month;

int days;

printf("Enter the month number: ");

scanf("%d",&month);

switch (month)

{

case 1:case 3:case 5:case 7:case 8:case 10:case 12:

days=31;

break;

case 4:case 6:case 9:case 11:

days=30;

break;

case 2:

days=28;

break;

default:

printf("Invalid month number");

}

printf("Number of days in month %d is: %d\n", month, days);

return 0;

}

**32. Write a C program to input basic salary of an employee and calculateits 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%**

ANS: #include<stdio.h>

int main()

{

float basicSalary, hra, da, grossSalary;

printf("Enter the basic salary of the employee: ");

scanf("%f", &basicSalary);

if (basicSalary <= 10000)

{

hra = basicSalary \* 0.20;

da = basicSalary \* 0.80;

}

else if (basicSalary <= 20000)

{

hra = basicSalary \* 0.25;

da = basicSalary \* 0.90;

}

else

{

hra = basicSalary \* 0.30;

da = basicSalary \* 0.95;

}

grossSalary = basicSalary + hra + da;

printf("Gross Salary: %f\n", grossSalary);

return 0;

}

**33. WAP to input the week number and print week day.**

ANS: #include<stdio.h>

int main()

{

int weekNumber;

printf("Enter the week number: ");

scanf("%d", &weekNumber);

switch (weekNumber)

{

case 1:

printf("Monday\n");

break;

case 2:

printf("Tuesday\n");

break;

case 3:

printf("Wednesday\n");

break;

case 4:

printf("Thursday\n");

break;

case 5:

printf("Friday\n");

break;

case 6:

printf("Saturday\n");

break;

case 7:

printf("Sunday\n");

break;

default:

printf("Invalid week number\n");

return 1;

}

return 0;

}

**34. Accept month number and display month name**

ANS: #include<stdio.h>

int main()

{

int monthNumber;

printf("Enter the month number: ");

scanf("%d",&monthNumber);

switch (monthNumber)

{

case 1:

printf("January\n");

break;

case 2:

printf("February\n");

break;

case 3:

printf("March\n");

break;

case 4:

printf("April\n");

break;

case 5:

printf("May\n");

break;

case 6:

printf("June\n");

break;

case 7:

printf("July\n");

break;

case 8:

printf("August\n");

break;

case 9:

printf("September\n");

break;

case 10:

printf("October\n");

break;

case 11:

printf("November\n");

break;

case 12:

printf("December\n");

break;

default:

printf("Invalid month number\n");

return 1;

}

return 0;

}

**35. Accept the input month number and print number of days in that month.**

ANS: #include<stdio.h>

int getDaysInMonth(int month)

{

switch (month)

{

case 1:

case 3:

case 5:

case 7:

case 8:

case 10:

case 12:

return 31;

case 4:

case 6:

case 9:

case 11:

return 30;

case 2:

return 28;

default:

printf("Invalid month number");

return -1;

}

}

int main()

{

int month;

printf("Enter the month number: ");

scanf("%d",&month);

int days = getDaysInMonth(month);

printf("Number of days in month %d is %d.\n", month, days);

return 0;

}

**36. Write a C program to input electricity unit charges and calculate totalelectricity 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**

ANS: #include<stdio.h>

int main()

{

float units,bill=0.0,totalBill;

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

scanf("%f",&units);

if (units<=50)

{

bill=units\*0.50;

}

else if (units<=150 && units>50)

{

bill=units\*0.75;

}

else if (units<=250 && units>150)

{

bill=units\*1.20;

}

else if (units>250)

{

bill=units\*1.50;

}

totalBill=bill\*1.20;

printf("Total electricity bill: Rs. %f\n",totalBill);

return 0;

}

WAP to show i. Monday to Sunday using switch case ii. Vowel or Consonant using switch case

ANS: (i) #include <stdio.h>

int main() {

int day;

printf("Enter a number for the day of the week: ");

scanf("%d", &day);

switch(day) {

case 1:

printf("Monday\n");

break;

case 2:

printf("Tuesday\n");

break;

case 3:

printf("Wednesday\n");

break;

case 4:

printf("Thursday\n");

break;

case 5:

printf("Friday\n");

break;

case 6:

printf("Saturday\n");

break;

case 7:

printf("Sunday\n");

break;

default:

printf("Invalid input! Please enter a number between 1 and 7.\n");

}

return 0;

}

(ii) #include <stdio.h>

int main() {

char ch;

printf("Enter a character: ");

scanf(" %c", &ch);

switch(ch) {

case 'a':

case 'e':

case 'i':

case 'o':

case 'u':

case 'A':

case 'E':

case 'I':

case 'O':

case 'U':

printf("%c is a vowel.\n", ch);

break;

default:

if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {

printf("%c is a consonant.\n", ch);

} else {

printf("%c is not a letter.\n", ch);

}

}

return 0;

}

* **LOOPING STATEMENT AND CONDITIONAL STATEMENT.**

1. **WAP to print 972 to 897 using for loop**

ANS. #include <stdio.h>

int main()

{

for (int i=972;i>=897;i--)

{

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

}

return 0;

}

1. **WAP to accept 5 numbers from user and display all numbers**

ANS. #include <stdio.h>

int main()

{

int num;

int i;

printf("Enter 5 numbers:\n");

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

{

printf("Number %d:",i);

scanf("%d",&num);

}

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

{

printf("You entered:%d\n",num);

}

return 0;

}

1. **WAP to take 10 no. Input from user find out below values a. How many Even numbers are there b. How many odd numbers are there c. Sum of even numbers d. Sum of odd numbers**

ANS. #include <stdio.h>

int main()

{

int num;

int i;

int evenCount = 0;

int oddCount = 0;

int evenSum = 0;

int oddSum = 0;

printf("Enter 10 numbers:\n");

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

{

printf("Number %d: ", i);

scanf("%d", &num);

if (num % 2 == 0)

{

evenCount++;

evenSum += num;

} else

{

oddCount++;

oddSum += num;

}

}

printf("Number of even numbers: %d\n", evenCount);

printf("Number of odd numbers: %d\n", oddCount);

printf("Sum of even numbers: %d\n", evenSum);

printf("Sum of odd numbers: %d\n", oddSum);

return 0;

}

1. **WAP to print table up to given numbers**

ANS. #include <stdio.h>

int main()

{

int number;

int i;

printf("Enter the number for the table: ");

scanf("%d", &number);

printf("table for %d:\n", number);

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

{

printf("%dx%d=%d\n",number, i, number\*i);

}

return 0;

}

1. **WAP to print factorial of given number**

ANS. #include<stdio.h>

main()

{

int i,n,fac=1;

printf("Enter number:");

scanf("%d",&n);

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

{

fac=fac\*i;

}

printf("Factorial is:%d",fac);

}

1. **WAP to print Fibonacci series up to given numbers**

ANS.

#include<stdio.h>

main()

{

int n,i,n1=0,n2=1;

printf("enter terms:");

scanf("%d",&n);

printf("%d",n1);

printf("\n%d",n2);

for(i=3;i<=n;i++)

{

int n3;

n3=n1+n2;

printf("\n%d",n3);

n1=n2;

n2=n3;

}

}

}

1. **WAP to print number in reverse order e.g.: number = 64728 ---> reverse =82746**

Ans. #include <stdio.h>

int main()

{

int number, reversed = 0, remainder;

printf("Enter a number: ");

scanf("%d", &number);

int originalNumber = number;

while (number != 0)

{

remainder = number % 10;

reversed = reversed \* 10 + remainder;

number /= 10;

}

printf("Reversed number: %d\n", reversed);

return 0;

}

1. Write a program to find out the max from given number (E.g., No: -1562Max number is 6)

ANS: #include <stdio.h>

int main()

{

int num;

int maxdigit=0;

printf("Enter a number: ");

scanf("%d",&num);

while(num > 0)

{

int digit=num % 10;

if(digit>maxdigit)

{

maxdigit=digit;

}

num /= 10;

}

printf("Max digit is: %d\n", maxdigit);

return 0;

}

1. **Write a program make a summation of given number (E.g., 1523 Ans: -11)**

Ans. #include <stdio.h>

int main()

{

int number, sum = 0, digit;

printf("Enter a number: ");

scanf("%d", &number);

if (number < 0)

{

number = -number;

}

while (number > 0)

{

digit = number % 10;

sum += digit;

number /= 10;

}

printf("Sum of the digits is: %d\n", sum);

return 0;

}

**10.Write a program you have to make a summation of first and last Digit. (E.g., 1234 Ans: -5)**

ANS. #include <stdio.h>

int main()

{

int number, originalNumber, lastDigit, firstDigit;

printf("Enter a number: ");

scanf("%d", &number);

originalNumber = number;

if (number < 0)

{

number = -number;

}

lastDigit = number % 10;

while (number >= 10)

{

number /= 10;

}

firstDigit = number;

int sum = firstDigit + lastDigit;

printf("Sum of the first and last digit of %d is: %d\n", originalNumber, sum);

return 0;

}

**11.Accept 5 names from user at run time.**

ANS. #include<stdio.h>

main()

{

char a[10];

int i=1;

for(i=1;i<=5;i++){

printf("Enter name:");

gets(a)

}

printf("Entered names are%d",a[i]);

}

**12.Program of Armstrong Number in C Using For Loop & While Loop**

ANS. #include <stdio.h>

int main()

{

int n,arm=0,r,c;

printf("Enter n:");

scanf("%d",&n);

c=n;

while(n>0)

{

r=n%10;

arm=(r\*r\*r)+arm;

n=n/10;

}

if(c==arm)

{

printf("No is armstrong");

}

else

{

printf("No is not armstrong");

}

}

For loop

#include <stdio.h>

int main()

{

int n,arm=0,r,c;

printf("Enter n: ");

scanf("%d",&n);

c=n;

for (;n > 0; n=n/10)

{

r=n%10;

arm=(r\*r\*r)+arm;

}

if (c==arm)

{

printf("No is armstrong\n");

}

else

{

printf("No is not armstrong\n");

}

return 0;

}

**13.calculate the Factorial of a Given Number using while loop**

ANS. #include<stdio.h>

main()

{

int i,n,fac=1;

printf("Enter number:");

scanf("%d",&n);

i=1;

while(i<=n)

{

fac=fac\*i;

i++;

}

printf("Factorial is:%d",fac);

}

**14.Accept 5 numbers from user and find those numbers factorials**

ANS: #include<stdio.h>

int fac(int n)

{

int i,fac=1;

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

{

fac=fac\*i;

}

return fac;

}

int main()

{

int numbers[5],i;

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

{

printf("Enter 5 numbers:\n");

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

}

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

{

printf("Factorial of %d is: %d\n",numbers[i],fac(numbers[i]));

}

return 0;

}

**15.Calculate sum of 10 numbers using of while loop**

ANS. #include <stdio.h>

int main()

{

int count=0;

int sum=0;

int number;

printf("Enter 10 numbers:\n");

while (count < 10)

{

scanf("%d", &number);

sum += number;

count++;

}

printf("Sum of the 10 numbers is: %d\n", sum);

return 0;

}

**16. Calculate the Sum of Natural Numbers Using the While Loop**

ANS. #include <stdio.h>

int main()

{

int n;

int sum=0;

int i=1;

printf("Enter a positive integer: );

scanf("%d", &n);

if (n<1)

{

printf("Please enter a positive integer\n");

return 1;

}

while (i<=n)

{

sum +=i;

i++;

}

printf("Sum of natural numbers up to %d is: %d\n", n, sum);

return 0;

}

**17. Calculate 5 numbers from user and calculate number of even and odd using of while loop**

ANS. #include <stdio.h>

int main()

{

int i=0;

int evenCount=0;

int oddCount=0;

int number;

printf("Enter 5 numbers:\n");

while (i<5)

{

scanf("%d", &number);

if (number%2==0)

{

evenCount++;

}

else

{

oddCount++;

}

i++;

}

printf("Number of even numbers:%d\n",evenCount);

printf("Number of odd numbers:%d\n",oddCount);

return 0;

}

**18. Write a C Program to Print the Multiplication Table of N i. E.g. 5 \* 1 = 5**

ANS. #include <stdio.h>

int main()

{

int n;

int i;

printf("Enter a number:");

scanf("%d",&n);

printf("Multiplication table for %d:\n",n);

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

{

printf("%d \* %d = %d\n",n, i,n\*i);

}

return 0;

}

**19. Patterns:**

Ans.

#include <stdio.h>

int main()

{

int i,j;

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

{

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

{

if (j % 2 == 1)

{

printf("1");

} else

{

printf("0");

}

}

printf("\n");

}

return 0;

}



#include<stdio.h>

main()

{

int i,j,n=65;

for(i=1;i<=4;i++)

{

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

{

printf("%c",n);

n++;

}

printf("\n");

}

}

**(3)**

#include<stdio.h>

main()

{

int i,j,k;

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

{

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

{

printf(" ");

}

for(k=1;k<=2\*i-1;k++)

{

printf("\*");

}

printf("\n");

}

}

**(4)**

#include <stdio.h>

int main()

{

int i,j;

int n=6;

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;

}

(5)

#include <stdio.h>

int main()

{

int i,j;

int num=1;

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

{

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

{

printf("%d ",num);

num++;

}

printf("\n");

}

return 0;

}

**(6)**

#include <stdio.h>

int main()

{

int i,j,a=65;

int num=1;

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

{

a=65;

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

{

printf("%c",a);

a++;

}

printf("\n");

}

return 0;

}

**20. WAP program to print below output using for loop 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 .............. .............. 41 42 43 44 45 46 47 48 49 50**

ANS. #include <stdio.h>

int main()

{

int num=1;

int i,j;

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

{

for(j=0;j<10;j++)

{

printf("%02d",num);

num++;

}

printf("\n");

}

return 0;

}

**22. Accept 3 numbers from user using while loop and check each numbers palindrome**

ANS: #include<stdio.h>

int main()

{

int n,r,c,s=0,i;

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

{

printf("Enter n: ");

scanf("%d", &n);

c = n;

while (n>0)

{

r=n%10;

s=(s\*10)+r;

n=n/10;

}

if (c==s)

{

printf("Palindrome number\n");

}

else

{

printf("Not a palindrome number\n");

}

}

return 0;

}

**23.C Program to Reverse a Number Using FOR Loop**

ANS: #include<stdio.h>

int main()

{

int n,r;

printf("Enter no: ");

scanf("%d",&n);

for(;n>0; n/=10)

{

r=n%10;

printf("%d",r);

}

printf("\n");

return 0;

}

**24. 1 + 2 + 3 + 4 + 5 + ... + n**

ANS: #include<stdio.h>

int sum(int n)

{

return n \* (n + 1) / 2;

}

int main()

{

int n,result;

printf("Enter a positive integer: ");

scanf("%d",&n);

if (n < 1)

{

printf("Please enter a positive integer.\n");

}

else

{

result=sum(n);

printf("The sum of the first %d natural numbers is %d\n", n, result);

}

return 0;

}

**25.** **(1\*1) + (2\*2) + (3\*3) + (4\*4) + (5\*5) + ... + (n\*n)**

ANS: #include <stdio.h>

int sum(int n)

{

return n \* (n + 1) \* (2 \* n + 1) / 6;

}

int main()

{

int n,result;

printf("Enter a positive integer: ");

scanf("%d", &n);

if (n < 1)

{

printf("Please enter a positive integer.\n");

}

else

{

result=sum(n);

printf("The sum of squares of the first %d natural numbers is %d\n",n,result);

}

return 0;

}

* **Topic-FUNCTION AND ARRAY**

1. **Write a program to find out the max number from given array using function**

ANS. #include<stdio.h>

int findMax(int a[],int size)

{

int max=a[0];

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

{

if (a[i]>max)

{

max=a[i];

}

}

return max;

}

int main()

{

int size;

printf("Enter the number of elements in the array: ");

scanf("%d", &size);

int a[size];

printf("Enter %d elements:\n", size);

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

{

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

}

int max=findMax(a,size);

printf("The maximum number in the array is: %d\n",max);

}

1. **WAP of Addition, Subtraction, Multiplication and Division using Switchcase.(Must Be Menu Driven)**

ANS: #include<stdio.h>

int main()

{

int choice;

float num1,num2,result;

printf("Select an operation:\n");

printf("1. Addition\n");

printf("2. Subtraction\n");

printf("3. Multiplication\n");

printf("4. Division\n");

printf("Enter your choice: ");

scanf("%d",&choice);

printf("Enter two numbers: ");

scanf("%f %f",&num1, &num2);

switch (choice)

{

case 1:

result = num1 + num2;

printf("addition: %f\n", result);

break;

case 2:

result = num1 - num2;

printf("subtraction: %f\n", result);

break;

case 3:

result = num1 \* num2;

printf("multiplication: %f\n", result);

break;

case 4:

result = num1 / num2;

printf("division: %f\n", result);

break;

default:

printf("Invalid choice\n");

break;

}

return 0;

}

1. **WAP to find reverse of string using recursion**

ANS: #include <stdio.h>

#include<string.h>

void reverseString(char str[],int index)

{

if (str[index]=='\0')

{

return;

}

reverseString(str,index + 1);

printf("%c", str[index]);

}

int main()

{

char str[100];

printf("Enter a string: ");

gets(str);

printf("Reversed string: ");

reverseString(str, 0);

printf("\n");

return 0;

}

1. **WAP to find factorial using recursion**

ANS: #include <stdio.h>

int fac(int n)

{

if(n<=1)

{

return 1;

}

else

{

return n\*fac(n-1);

}

}

int main()

{

int n,fa;

printf("Enter n");

scanf("%d",&n);

fa=fac(n);

printf("factorial is:%d",fa);

return 0;

}

**5. WAP to take two Array input from user and sort them in ascending or descending order as per user’s choice**

**ANS**. #include<stdio.h>

int main()

{

int choice;

int size=4;

int a[size];

int i,j,temp;

while (1)

{

printf("1. Descending order\n");

printf("2. Ascending order\n");

printf("Enter your choice: ");

scanf("%d", &choice);

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

{

printf("Enter element :");

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

}

if (choice==1)

{

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

{

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

{

if(a[i]<a[j])

{

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

}

printf("Array in descending order:\n");

} else if (choice==2)

{

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

{

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

{

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

{

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

}

printf("Array in ascending order:\n");

}

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

{

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

}

printf("\n");

}

return 0;

}

**6. WAP to make addition, Subtraction and multiplication of two matrix using2-D Array**

**ANS.** #include<stdio.h>

main()

{

int i,j;

int a[2][3],b[2][3];

for(i=0;i<2;i++)

{

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

{

printf("enter elements:");

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

}

}

printf("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");

for(i=0;i<2;i++)

{

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

{

printf("enter elements:");

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

}

}

printf("\n\*\*\*\*\*\*\*\*\*\*ADDITION\*\*\*\*\*\*\*\*\*\*\*");

for(i=0;i<2;i++)

{

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

{

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

}

}

printf("\n\*\*\*\*\*\*\*\*\*\*SUB\*\*\*\*\*\*\*\*\*\*\*");

for(i=0;i<2;i++)

{

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

{

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

}

}

printf("\n\*\*\*\*\*\*\*\*\*\*MUL\*\*\*\*\*\*\*\*\*\*\*");

for(i=0;i<2;i++)

{

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

{

printf("\n\*MUL is:%d",a[i][j]\*b[i][j]);

}

}

}

**7. WAP Find out length of string without using inbuilt function**

**ANS.** #include<stdio.h>

#include<string.h>

main()

{

char a[5],i;

int len=0;

printf("Enter name:");

gets(a);

for(i=0;a[i]!='\0';i++)

{

len++;

}

printf("Lengthh of string is: %d",len);

}

1. **Write a program of structure employee that provides the following a. information -print and display empno, empname, addressandage b. Write a program of structure for five employee that provides the following information -print and displayempno, empname, address and age**

ANS: (a) #include<stdio.h>

#include<string.h>

struct Employee

{

int empno;

char empname;

char address;

int age;

};

int main()

{

struct Employee emp;

printf("Enter employee number: ");

scanf("%d", &emp.empno);

printf("Enter employee name: ");

scanf(" %c",&emp.empname);

printf("Enter employee address: ");

scanf(" %c",&emp.address);

printf("Enter employee age: ");

scanf("%d",&emp.age);

printf("Employee Information:\n");

printf("Employee Number: %d\n",emp.empno);

printf("Employee Name: %s\n",emp.empname);

printf("Address: %s\n", emp.address);

printf("Age: %d\n", emp.age);

return 0;

}

(b) #include<stdio.h>

#include<string.h>

struct Employee

{

int empno;

char empname;

char address;

int age;

};

int main()

{

int i;

struct Employee employees;

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

{

printf("Enter employee number:");

scanf("%d",&employees.empno);

printf("Enter employee name: ");

scanf("%s", &employees.empname);

printf("Enter employee address: ");

scanf(" %s",&employees.address);

printf("Enter employee age: ");

scanf("%d", &employees.age);

}

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

{

printf("Employee Number: %d\n",employees.empno);

printf("Employee Name: %s\n",employees.empname);

printf("Address: %s\n",employees.address);

printf("Age: %d\n",employees.age);

}

return 0;

}

1. **WAP to show difference between Structure and Union.**

ANS: #include <stdio.h>

struct Person

{

int age;

float height;

};

union Person1

{

int age;

float height;

};

int main()

{

struct Person p;

p.age=30;

p.height=5.9;

union Person1 p1;

p1.age=36;

p1.height=3.4;

printf("Age: %d\n",p.age);

printf("Height: %f\n",p.height);

printf("Age: %d\n",p1.age);

printf("Height: %f\n",p1.height);

return 0;

}

**10.WAP to perform Palindrome number using for loop and function**

ANS: #include <stdio.h>

int main() {

int n, r, c, s, I,temp;

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

printf("Enter n: ");

scanf("%d", &n);

c = n;

s = 0;

int digits = 0;

for ( temp = n; temp > 0; temp /= 10) {

digits++;

}

for (int j = 0; j < digits; j++) {

r = n % 10;

s = (s \* 10) + r;

n /= 10;

}

if (c == s) {

printf("Palindrome number\n");

} else {

printf("Not a palindrome number\n");

}

}

return 0;

}

ANS:

**11.WAP to accept 5 numbers from user and display in reverse order using for loop and array**

**ANS**. #include <stdio.h>

int main()

{

int a[5];

int i;

printf("Enter 5 numbers:\n");

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

{

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

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

}

printf("Numbers in reverse order:\n");

for (i=4;i>=0;i--)

{

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

}

return 0;

}

**12.WAP to accept 5 students name and store it in array**

**ANS**. #include<stdio.h>

#include<string.h>

int main()

{

char a[5],i;

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

{

printf("\nenter 5 names:");

gets(a);

}

}

**13.WAP to accept 5 numbers from user and check entered number is even or oddusing of array**

**ANS**. #include <stdio.h>

int main()

{

int a[5];

int i;

printf("Enter numbers:\n",a[5]);

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

{

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

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

}

printf("\nChecking if each number is even or odd:\n");

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

{

if (a[i]%2== 0)

{

printf("Number %d is even.\n",a[i]);

} else

{

printf("Number %d is odd.\n",a[i]);

}

}

return 0;

}

**14.Perform 2D matrix array**

**ANS.** #include<stdio.h>

main()

{

int i,j;

int a[2][3],b[2][3];

for(i=0;i<2;i++)

{

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

{

printf("enter elements:");

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

}

}

printf("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");

for(i=0;i<2;i++)

{

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

{

printf("enter elements:");

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

}

}

printf("\n\*\*\*\*\*\*\*\*\*\*ADDITION\*\*\*\*\*\*\*\*\*\*\*");

for(i=0;i<2;i++)

{

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

{

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

}

}

}

**15.Store 5 numbers in array and sort it in ascending order**

**ANS**. #include<stdio.h>

main()

{

int i,j,temp,a[4];

for(i=0;i<4;i++)

{

printf("Enter elements:");

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

}

for(i=0;i<4;i++)

{

for(j=i+1;j<4;j++)

{

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

{

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

}

for(i=0;i<4;i++)

{

printf("\nascending order: %d",a[i]);

}

}

**16.Accept 5 numbers from user and perform sum of array**

**ANS.** #include<stdio.h>

main()

{

int a[5],sum=0;

int i;

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

{

printf("\nEnter elements:");

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

}

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

{

printf("\nelements are: %d",a[i]);

sum=sum+a[i];

}

printf("\nSum is %d",sum);

}

* **String**

1. **Write a program in C to find the length of a string without using library functions**

ANS. #include<stdio.h>

#include<string.h>

int main()

{

char a[5];

int i,l;

printf("enter names:");

gets(a);

for(i=1;a[i]!='\0';i++)

{

l++;

}

printf("Length of string is: %d",l);

}

1. **Write a program in C to separate individual characters from a string**

ANS. #include<stdio.h>

#include<string.h>

int main()

{

char a[100];

int i;

printf("Enter a string: ");

gets(a);

printf("Individual characters:\n");

for (i=0;a[i]!='\0';i++)

{

printf("%c\n",a[i]);

}

return 0;

}

1. **Write a program in C to print individual characters of a string in reverse order**

ANS: #include<stdio.h>

int main()

{

char str[100];

int i;

printf("Enter a string: ");

gets(str);

for (i=0;str[i]!='\0';i++);

printf("Characters in reverse order:\n");

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

{

printf("Character: %c\n", str[i]);

}

return 0;

}

1. **Write a program in C to count the total number of words in a string.**

ANS: #include<stdio.h>

#include<string.h>

int main()

{

char str[100];

int i,wordcount=0;

int inword = 0;

printf("Enter a string: ");

gets(str);

for (i=0;str[i]!='\0';i++)

{

if (str[i]!= ' ' && str[i]!= '\n')

{

if (!inword)

{

wordcount++;

inword=1;

}

}

else

{

inword=0;

}

}

printf("Total number of words: %d\n", wordcount);

return 0;

}

**5. Write a program in C to compare two strings without using string library functions.**

ANS: #include <stdio.h>

#include<string.h>

void main()

{

char str1[100],str2[100];

int i=0;

printf("Enter the first string: ");

gets(str1);

printf("Enter the second string: ");

gets(str2);

while (str1[i]!='\0' && str2[i]!='\0')

{

if (str1[i]!=str2[i])

{

printf("The strings are not equal.\n");

}

else

{

printf("The strings are equal.\n");

}

break;

}

i++;

}

**6. Write a program in C to count the total number of alphabets, digits and special characters in a string**

ANS: #include <stdio.h>

#include <ctype.h>

int main()

{

char str[100];

int alphabets = 0, digits = 0, specialChars = 0;

int i = 0;

printf("Enter a string: ");

gets(str);

while (str[i] != '\0')

{

if (isalpha(str[i]))

{

alphabets++;

} else if (isdigit(str[i]))

{

digits++;

} else

{

specialChars++;

}

i++;

}

printf("Total number of alphabets: %d\n", alphabets);

printf("Total number of digits: %d\n", digits);

printf("Total number of special characters: %d\n", specialChars);

return 0;

}

**7. Write a program in C to copy one string to another string.**

ANS: #include<stdio.h>

#include<string.h>

main()

{

char a[5],b[5];

printf("Enter a:");

gets(a);

strcpy(b,a);

printf("Copy string is: %s",b);

}

1. **Write a program in C to count the total number of vowels or consonants in a string**

ANS: #include <stdio.h>

#include <ctype.h>

int main()

{

char str[100];

int vowels = 0, consonants = 0;

int i = 0;

printf("Enter a string: ");

gets(str);

while (str[i] != '\0')

{

char ch = tolower(str[i]);

if (ch >= 'a' && ch <= 'z')

{

if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u')

{

vowels++;

} else

{

consonants++;

}

}

i++;

}

printf("Total number of vowels: %d\n", vowels);

printf("Total number of consonants: %d\n", consonants);

return 0;

}

**9.Write a program in C to find the maximum number of characters in a string.**

ANS: #include <stdio.h>

#include<string.h>

int main() {

char str[100];

int length = 0;

printf("Enter a string: ");

gets(str);

while (str[length] != '\0')

{

length++;

}

printf("The maximum number of characters in the string is: %d\n", length);

return 0;

}

**10.Write a program in C to extract a substring from a given string**

ANS: #include <stdio.h>

#include<string.h>

int main()

{

char str[100],substr[100];

int start,length,i;

printf("Enter a string: ");

gets(str);

printf("Enter the starting position (0-based index): ");

scanf("%d", &start);

printf("Enter the length of the substring: ");

scanf("%d", &length);

if (start < 0 || length < 0 || start >= i)

{

printf("Invalid start position or length.\n");

}

i=0;

while (i<length && str[start + i]!= '\0')

{

substr[i]=str[start + i];

i++;

}

substr[i]='\0';

printf("Extracted substring: %s\n", substr);

return 0;

}

**11.Write a program in C to read a sentence and replace lowercase characters with uppercase and vice versa.**

ANS: #include <stdio.h>

#include<string.h>

#include <ctype.h>

int main()

{

char str[100];

int i = 0;

printf("Enter string: ");

gets(str);

while (str[i] != '\0')

{

if (islower(str[i]))

{

str[i] = toupper(str[i]);

}

else if (isupper(str[i]))

{

str[i] = tolower(str[i]);

}

i++;

}

printf("The answer is: %s\n", str);

return 0;

}

**12.Write a program in C to find the number of times a given word 'is' appears inthe given string.**

ANS: #include <stdio.h>

int main()

{

char str[10];

int count=0;

int i;

printf("Enter the string: ");

gets(str);

for (i=0;str[i]!='\0';i++)

{

if (str[i]=='i' && str[i + 1]=='s')

{

count++;

}

}

printf("The word is appears %d times in the given string.\n",count);

return 0;

}

**13.Write a program in C to remove characters from a string except alphabets.**

ANS: #include <stdio.h>

#include <ctype.h>

int main()

{

char str[100], result[100];

int i=0,j=0;

printf("Enter a string: ");

gets(str);

while (str[i]!='\0')

{

if (isalpha(str[i]))

{

result[j]=str[i];

j++;

}

i++;

}

result[j] ='\0';

printf("String with only alphabets: %s\n", result);

return 0;

}

**14.Write a program in C to combine two strings manually**

ANS: #include<stdio.h>

main()

{

char a[5],b[5];

printf("Enter s1:");

gets(a);

printf("Enter s2:");

gets(b);

printf("Merge string :%s",strcat(a,b));

}