 GALGOTIAS UNIVERSITY

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**Greater Noida, Gautam Buddha Nagar, U.P., India**

**SCHOOL OF COMPUTING SCIENCE & ENGINEERING**

**“LAB PRACTICAL FILE”**

**Course Name: Programing in Problem Solving-C**

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| --- | --- |
| **Submitted By:** | **Submitted To:** |
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**LAB SHEET #1**

**Q1) Write a program to display “hello world” in C**

#include<stdio.h>

int main(){

    printf("hello world");

    return 0;

}

***output***

hello world

**Q2) Write a program to add two numbers (5&7) and display its sum.**

#include<stdio.h>

int main(){

    int first;

    printf("enter first number to add=: ");

    scanf("%d",&first);

    int second;

    printf("enter second number to aadd: ");

    scanf("%d",&second);

    printf("addition is %d",first+second);

    return 0;

}

**Output**

enter first number to add=: 5

enter second number to aadd: 7

addition is 12

**3. Write a program to multiply two numbers (10&8) and display its product.**

#include<stdio.h>

int main(){

    int first;

    printf("enter first number to multiply=: ");

    scanf("%d",&first);

    int second;

    printf("enter second number to multiply: ");

    scanf("%d",&second);

    printf("multiplication is %d",first\*second);

    return 0;

}

**Output**

enter first number to multiply=: 10

enter second number to multiply: 8

multiplication is 80

**Q4) Write a program to calculate area of a circle having its radius (r=5).**

#include<stdio.h>

int main(){

    float radius;

    float pi=3.14;

    printf("enter the radius of a circle: ");

    scanf("%f",&radius);

    printf("area of a circle is %f \n",pi\*radius\*radius);

    return 0;

}

**output**

enter the radius of a circle: 5

area of a circle is 78.500000

Q5) **Write a program to calculate area of an ellipse having its axes (minor=4cm, major=6cm**

#include<stdio.h>

int main(){

    int pi=3.14;

    int axis;

    printf("enter the a axis of ecllipse:");

    scanf("%d",&axis);

    int baxis;

    printf("enter the b axis of eclipse:");

    scanf("%d",&baxis);

    printf("the area of ecllipse is %d cm sq",pi\*axis\*baxis);

    return 0;

}

**Output**

enter the a axis of ecllipse:4

enter the b axis of eclipse:6

the area of ecllipse is 72 cm sq

**6. Write a program to calculate simple interest for a given P=4000, T=2, R=5.5. (I = P\*T\*R/100)**

#include<stdio.h>

int main(){

    int p=4000;

    float r=5.5;

    int t=2;

    printf("simple interest is:%f",(p\*r\*t)/100);

    return 0;

}

**Output**

simple interest is:440.000000

**LAB SHEET 2**

Q1) Write a program to declare two integer and one float variables then initialize them to 10, 15, and 12.6. Also print the variable values in the screen

#include<stdio.h>

int main(){

    int num1=10,num2=15;

    float num3=12.6;

    printf("num1 is %d\n",num1);

    printf("num2 is %d\n",num2);

    printf("num3 is %f\n",num3);

    return 0;

}

**Output**

num1 is 10

num2 is 15

num3 is 12.600000

**Q2) Write a C program to prompt the user to input 3 integer values and print these values in forward and reversed order**

#include<stdio.h>

int main(){

    int num1,num2,num3;

    printf("enter num1:");

    scanf("%d",&num1);

    printf("enter num2:");

    scanf("%d",&num2);

    printf("enter num3:");

    scanf("%d",&num3);

    printf("\nforward\n");

    printf("%d %d %d",num1,num2,num3);

    printf("\n");

    printf("\nbakward \n");

    printf("%d %d %d",num3,num2,num1);

    return 0;

}

Output Q2

**enter num1:1**

**enter num2:2**

**enter num3:3**

**forward**

**1 2 3**

**bakward**

**3 2 1**

Q3) Write a program to calculate simple and compound interest

#include<stdio.h>

#include<math.h>

int main(){

    float p,r,t,n;

    float x,y;

    printf("enter principle:");

    scanf("%f",&p);

    printf("enter rate:");

    scanf("%f",&r);

    printf("enter time period:");

    scanf("%f",&t);

    printf("number of times interest applied per timeperiod:");

    scanf("%f",&n);

printf("simple interest is :%f\n",p\*r\*t);

    x=r/n;

    y=pow(1+x,n\*t);

    printf("compound intest is:%f\n",p\*y);

    return 0;

}

**Output-Q3**

enter principle:100000

enter rate:3

enter time period:2

number of times interest applied per time period:3

simple interest is :600000.000000

compound intest is:6400000.000000

Q4) Write a program to swap two variables’ values with and without using third variables

#include<stdio.h>

int main(){

    //swap

    int var1=10;

    int var2=20;

    int \*ptr1=&var1;

    int \*ptr2=&var2;

    printf("before swap\n");

    printf("var1:%d\n",var1);

    printf("var2:%d\n",var2);

    printf("after swap\n");

    var1=\*ptr2;

    var2=\*ptr1;

    printf("var1:%d\n",var1);

    printf("var2:%d\n",var2);

    return 0;

**output**

before swap

var1:10

var2:20

after swap

var1:20

var2:20

Q5) Write a program to check odd or even number (a) using modulus operator (b) using bitwise operator (c) without using bitwise and modulus operator (d) using conditional operator.

#include<stdio.h>

int main(){

    int num1;

    printf("enter a number to check odd or even:");

    scanf("%d",&num1);

    // conditional and modulus operator

    if(num1%2==0){

        printf("this is even");

    }

    else{

        printf("it is odd");

    }

    return 0;

**output Q5) note-no bitwise operator**

enter a number to check odd or even:45

it is odd

enter a number to check odd or even:22

this is even

Q6) 6. Print the value of y for given x=2 & z=4 and analyze the output.

a. y = x+++ ++x;

b. y= ++x + ++x;

c. y= ++x + ++x +++x;

d. y = x>z;

e. y=x>z? x:z;

f. y = x&z;

g. y= x>>2 + z<<1;

#include<stdio.h>

int fst(int x,int y);

int sec(int x,int y);

int thir(int x,int y);

int fort(int x,int y);

int six(int x,int y);

int svn(int x,int y);

int egt(int x,int y);

int main(){

    int x=2,y,z=4;

    fst(x,y);

    sec(x,y);

    thir(x,y);

    fort(x,z);

    six(x,z);

    svn(x,z);

    egt(x,z);

    return 0;

}

int fst(int x,int y){

    y = x+++ ++x;

    printf("%d\n",y);

}

int sec(int x,int y){

    y = x+++ ++x;

    printf("%d\n",y);

}

int thir(int x,int y){

    y= ++x + ++x + ++x;

    printf("%d\n",y);

}

int fort(int x,int z){

    int y;

    y = x>z;

    printf("%d\n",y);

}

int six(int x,int z){

    int y;

    y=x>z? x:z;

    printf("%d\n",y);

}

int svn(int x,int z){

    int y;

    y = x&z;

    printf("%d\n",y);

}

int egt(int x,int z){

    int y;

    y= x>>2 + z<<1;

    printf("%d\n",y);

}

**Output**

6

6

13

0

4

0

0

Q7) Write a program to print the size of char, float, double and long double data types inC.

#include<stdio.h>

int main(){

    printf("size of char is %d\n",sizeof(char));

    printf("size of float is %d\n",sizeof(float));

    printf("size of double data type is %d\n",sizeof(double));

    printf("size of long double is %d",sizeof(long double));

    return 0;

}

**Output**

size of char is 1

size of float is 4

size of double data type is 8

size of long double is 16

**LAB SHEET #3**

**Q1)** 1. Write a program to produce the output as shown below:

x y expression result

6 | 3 | x=y+3 | x=6

6 | 3 | x=y-2 | x=1

6 | 3 | x=y\*5 | x=15

6 | 3 | x=x/y | x=2

6 | 3 | x=x%y | x=0

#include<stdio.h>

int main(){

    int x=6,y=3;

    printf("x\ty\texpression\tresult\n");

    printf("%d  |\t%d   |\tx=y+3        |\t x=%d\n",x,y,y+3);

    printf("%d  |\t%d   |\tx=y-2        |\t x=%d\n",x,y,y-2);

    printf("%d  |\t%d   |\tx=y\*5        |\t x=%d\n",x,y,y\*5);

    printf("%d  |\t%d   |\tx=x/y        |\t x=%d\n",x,y,x/y);

    printf("%d  |\t%d   |\tx=x%y        |\t x=%d\n",x,y,x%y);

    return 0;

}

**Output**

x y expression result

6 | 3 | x=y+3 | x=6

6 | 3 | x=y-2 | x=1

6 | 3 | x=y\*5 | x=15

6 | 3 | x=x/y | x=2

6 | 3 | x=x%y | x=0

Q2) 2. Given x=3.0, y=12.5, z= 523.3, A=300.0, B=1200.5, C=5300.3, Write a program to display the following:

x y z= | 3.0| 12.5| 523.3|

A B C= | 300.0| 1200.5| 5300.3|

----------------------------------------------------------

x y z= |3.0 |12.5 |523.3 |

A B C= |300.0 |1200.5 |5300.3 |

#include<stdio.h>

int main(){

    float x=3.0, y=12.5, z= 523.3, A=300.0, B=1200.5, C=5300.3;

    printf("x\ty\tz= |  \t  %.1f| \t  %.1f|    %.1f|\n",x,y,z);

    printf("A\tB\tC= |  \t%.1f| \t%.1f|   %.1f|\n",A,B,C);

    printf("----------------------------------------------------------\n");

    printf("x\ty\tz= |%.1f      |%.1f    |%.1f    |\n",x,y,z);

    printf("A\tB\tC= |%.1f    |%.1f  |%.1f   |\n",A,B,C);

    return 0;

}

**output**

x y z= | 3.0| 12.5| 523.3|

A B C= | 300.0| 1200.5| 5300.3|

----------------------------------------------------------

x y z= |3.0 |12.5 |523.3 |

A B C= |300.0 |1200.5 |5300.3 |

3. Given the three numbers a(=8), b(=4),c and constant value PI=3.1415, calculate and display the following result using macros (preprocessor directives)

a. c = PI \* mult(a,b) //the macro mult(a,b) perform the multiplication of a & b(a\*b)

b. c= PI\* sum(a,b) //the macro mult(a,b) perform the sum of a & b (a+b)

c. c= PI \*sub(a,b) //the macro mult(a,b) perform the subtraction of a & b (a-b)

d. c= PI\*div(a,b) //the macro mult(a,b) perform the division of a & b (a/b)

#include<stdio.h>

#define MULT(a,b)(a\*b)

#define SUM(a,b)(a+b)

#define SUB(a,b)(a-b)

#define DIV(a,b)(a/b)

int main(){

    int a=8,b=4,c;

    float PI=3.1415,mult,sum,sub,div;

    mult=MULT(a,b);

    printf("multiplication is %f\n",PI\*mult);

    sum=SUM(a,b);

    printf("sum is %f\n",PI\*sum);

    sub=SUB(a,b);

    printf("subtraction is %f\n",PI\*sub);

    div=DIV(a,b);

    printf("division is %f\n",PI\*div);

    return 0;

}

**Output**

multiplication is 100.528000

sum is 37.697998

subtraction is 12.566000

division is 6.283000

Q4) **Demonstrate the differences among getch(), getche(), getchar, scanf() & gets(), printf() & puts()**

#include<stdio.h>

#include<conio.h>

int main(){

    char array[10];

    printf("enter a word :");

    scanf("%s",&array); //read data

    printf("enter word is %s\n",array); //print data

    fflush(stdin);

    char alpha[50];

    printf("enter a line: ");

    gets(alpha);  //allow u to enter words with spaces

    puts(alpha);    //print the data in a new line

    printf("%c\n",getche()); //reads a single character from the keyboard and displays immediately on output screen without waiting for enter key

    printf("%c\n", getchar()); //getchar() reads from standard input. So getchar() is equivalent to getc(stdin)

    printf(" %c\n", getch()); //entered character is immediately returned without waiting for the enter key

    return 0;

}

**output**

enter a word :hello

enter word is hello

enter a line: hello world

hello world

gg

g

g

g

5. Write a program to take a character input from keyboard and check if it is a number or alphabet or special character using ASCII CODE Again check if the character is using character functions below: a. Alphanumeric => isalnum() b. Blank character => isblank() c. Alphabetic => isalpha() d. Control character => iscntrl() e. Number-digit => isdigit()f. Upper case => isupper() g. Lower case => islower() h. Hexadecimal digit => ixdigit()i. Graphical character => isgraph()

#include<stdio.h>

#include<ctype.h>

int main(){

    char c;

    int n;

    printf("enter a charactor:");

    scanf("%s",&c,&n);

    if(c>96 && c<123){

        printf("this character is lowercase alphabets\n");

    }

    else if(c>64 && c<91){

        printf("this character is uppercase alphabet\n");

    }

    else if(c>47 && c<58){

        printf("this character is a number\n");

    }

    else{

        printf("this character is a special character\n");

    }

    //checking through the help of funtion

    if(isalnum(c)!=0){

        printf("character is alphanumeric\n");

    }

    if(isblank(c)==1){

        printf("field is blank\n");

    }

    if(isalpha(c)!=0){

        printf("character is alpha\n");

    }

    if(iscntrl(c)!=0){

        printf("character is control character\n");

    }

    if(isdigit(c)!=0){

        printf("character is a digit\n");

    }

    if(isupper(c)!=0){

        printf("uppercase alphabet\n");

    }

    if(islower(c)!=0){

        printf("lowercase alphabet\n");

    }

    if(isxdigit(c)!=0){

        printf("Hexadecimal digit\n");

    }

    if(isgraph(c)!=0){

        printf("Graphical character\n");

    }

    return 0;

}

**Output**

enter a charactor:16

this character is a number

character is alphanumeric

character is a digit

Hexadecimal digit

Graphical character

**LAB SHEET #4**

Q1) Write a program to find the largest and smallest among three entered numbers and also display whether the identified largest/smallest number is even or odd.

#include<stdio.h>

#include<stdlib.h>

int odevn(int a){

    if(a%2==0){

        printf("%d is even\n",a);

    }

    else{

        printf("%d is odd\n",a);

    }

}

void small(int a,int b){

    if(a<b){

        printf("%d is the smallest no. \n",a);

    }

    else if(a==b){

        printf("%d is the smallest no . \n",a);

    }

    else{

        printf("%d is the samllest no. \n",b);

    }

}

int main(){

    int n1,n2,n3,x,y,sml1,sml2;

    printf("enter 1st integer:");

    scanf("%d",&n1);

    printf("enter 2nd integer:");

    scanf("%d",&n2);

    printf("enter 3rd integer:");

    scanf("%d",&n3);

    if(n1==n2 && n1==n3){

        printf("enter different values\n");

        exit(0);

    }

    if(n1>n2){

        x=n1;

        sml1=n2;}

    if(n2>n1){

        x=n2;

        sml1=n1;}

    if(n2>n3){

        y=n2;

        sml2=n3;}

    if(n3>n2){

        y=n3;

        sml2=n2;}

    if(x>y){

        printf("%d is the greatest no.\n",x);

        small(sml1,sml2);

        odevn(x);}

    if(y>x){

        printf("%d is the greatest no.\n",y);

        small(sml1,sml2);

        odevn(y);}

    if(x==y){

        printf("%d is the greatest no.\n",x);

        small(sml1,sml2);

        odevn(x);}

    return 0;

}

**Output Q1**

enter 1st integer:34

enter 2nd integer:67

enter 3rd integer:12

67 is the greatest no.

12 is the samllest no.

67 is odd

**Q2) Write a program to check whether input alphabet is vowel or not using if-else and switch statement**

#include<stdio.h>

int main(){

    char vowel;

    printf("enter a alphabet:");

    scanf("%c",&vowel);

    printf("using if statement\n\n");

    if(vowel=='a'||vowel=='e'||vowel=='i'||vowel=='o'||vowel=='o'){

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

    else{

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

    printf("using switch statement\n\n");

    switch (vowel){

        case 'a':

            printf("a is vowel");

            break;

        case 'e':

            printf("e is a vowel");

            break;

        case 'i':

            printf("i is a vowel");

            break;

        case 'o':

            printf("o is a vowel");

            break;

        case 'u':

            printf("u is a vowel");

            break;

        default:

            printf("%c is not a vowel",vowel);}

    return 0;}

**Output 1)**

enter a alphabet:d

using if statement

d is not a vowel

using switch statement

d is not a vowel

**output2)**

enter a alphabet:e

using if statement

e is a vowel

using switch statement

e is a vowel

**Q3) Write a program to get input of two or higher digit integer number and display in reverse order**

//hint divide the no. by 10

#include<stdio.h>

int main(){

    int num,r;

    printf("enter a two or more digit number:");

    scanf("%d",&num);

    while(num>=10){

        r=num%10;

        printf("%d",r);

        num=num/10;}

    printf("%d",num);

    return 0;}

output

**enter a two or more digit number:10**

**01**

**enter a two or more digit number:352**

**253**

**Q4)** Write a program that asks a number and test the number whether it is multiple of 5 or not, divisible by 7 but not by eleven

#include<stdio.h>

int main(){

    int num;

    printf("enter a number to verify the question:");

    scanf("%d",&num);

    if(num%5==0){

        printf("%d is a multiple of  5\n",num);

        if(num%7==0 && num%11!=0){

            printf("%d is divisble by 7 but not by 11\n",num);

        }

        else{

            printf("divisible by 11");

        }

    }

    else if(num%5!=0){

        printf("%d is not a multiple of 5 \n",num);

        printf("not divisible by 7\n");

    }

    return 0;

}

output

**enter a number to verify the question:16324**

**16324 is not a multiple of 5**

**not divisible by 7**

**enter a number to verify the question:35**

**35 is a multiple of 5**

**35 is divisble by 7 but not by 11**

Q5) Write a program to check whether the entered year is leap year or not (a year is leap if it is divisible by 4 and divisible by 100 or 400.)

#include<stdio.h>

int main(){

    int year;

    printf("enter a year to find is it a leap year:");

    scanf("%d",&year);

    if(year%4==0){

        if(year%100==0 &&year%400==0){

            printf("%d is leap year",year);

        }

        else if(year%100!=0){

            printf("%d is leap year",year);

        }

    }

    else{

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

    }

    return 0;

}

**Output**

enter a year to find is it a leap year:2016

2016 is leap year

enter a year to find is it a leap year:2014

2014 is not a leap year

Q6) Write a program to read the values of coefficients a, b and c of a quadratic equation ax2+bx+c=0 and find roots of the equation.

#include<stdio.h>

#include<math.h>

int main(){

    int a,b,c,d;

    int x1,x2;

    printf("enter cofficient a :");

    scanf("%d",&a);

    printf("enter cofficient b :");

    scanf("%d",&b);

    printf("enter cofficient c :");

    scanf("%d",&c);

    d=b\*b-4\*a\*c;

    x1=(-b+sqrt(d))/2\*a;

    x2=(-b-sqrt(d))/2\*a;

    if(d>0){

        printf("first root is %d\n",x1);

        printf("second root is %d\n",x2);

    }

    else if(d<0){

        printf("there are two complex roots %d,%d\n",x1,x2);

    }

    else{

        printf("roots are equal ,%d",x1);

    }

    return 0;

}

Output

enter cofficient a :1

enter cofficient b :2

enter cofficient c :1

roots are equal ,-1

**lab sheet 5**

Q1) Write a program to input two integer numbers and display the sum of even numbers between these two input numbers.

#include<stdio.h>

int sum(int a,int b){

    int i=0;

    for(a;a<=b;a++){

        if(a%2==0){

            i+=a;

        }

    }

    return i;

}

int main(){

    int n1,n2,add;

    printf("enter starting range:");

    scanf("%d",&n1);

    printf("enter ending range:");

    scanf("%d",&n2);

    add=sum(n1,n2);

    printf("sum of even integer from %d to %d is %d\n",n1,n2,add);

    return 0;

}

**Output**

enter starting range:1

enter ending range:9

sum of even integer from 1 to 9 is 20

Q2) Write a program to find GCD (greates common divisor or HCF) and LCM (least common multiple) of two numbers

#include<stdio.h>

int hcf(int a,int b){

    int i, gcd;

    for(i=1; i <= a && i <= b; ++i){

        if(a%i==0 && b%i==0)

            gcd = i;

    }

    return gcd;

}

int main(){

    int n1,n2,y;

    printf("enter a 1st no. to get lcm and hcf:");

    scanf("%d",&n1);

    printf("enter a 2nd no. to get lcm and hcf:");

    scanf("%d",&n2);

    y=hcf(n1,n2);

    printf("hcf is %d\n",y);

    printf("lcm is %d\n",(n1\*n2)/y);

    return 0;

}

**output**

enter a 1st no. to get lcm and hcf:12

enter a 2nd no. to get lcm and hcf:18

hcf is 6

lcm is 36

Q3) **Write a program to display Fibonacci series of last term up to 300**

#include<stdio.h>

void printFibonacci(int n){

    static int n1=0,n2=1,n3;

    if(n>0){

         n3 = n1 + n2;

         n1 = n2;

         n2 = n3;

         printf("%d ",n3);

         printFibonacci(n-1);}}

int main(){int n;

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

    scanf("%d",&n);

    printf("Fibonacci Series: ");

    printf("%d %d ",0,1);

    printFibonacci(n-2);

  return 0;  }

Output

Enter the number of elements: 300

Fibonacci Series: 0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 10946 17711 28657 46368 75025 121393 196418 317811 514229 832040 1346269 2178309 3524578 5702887 9227465 14930352 24157817 39088169 63245986 102334155 165580141 267914296 433494437 701408733 1134903170 1836311903 -1323752223 512559680 -811192543 -298632863 -1109825406 -1408458269 1776683621 368225352 2144908973 -1781832971 363076002 -1418756969 -1055680967 1820529360 764848393 -1709589543 -944741150 1640636603 695895453 -1958435240 -1262539787 1073992269 -188547518 885444751 696897233 1582341984 -2015728079 -433386095 1845853122 1412467027 -1036647147 375819880 -660827267 -285007387 -945834654 -1230842041 2118290601 887448560 -1289228135 -401779575 -1691007710 -2092787285 511172301 -1581614984 -1070442683 1642909629 572466946 -2079590721 -1507123775 708252800 -798870975 -90618175 -889489150 -980107325 -1869596475 1445263496 -424332979 1020930517 596597538 1617528055 -2080841703 -463313648 1750811945 1287498297 -1256657054 30841243 -1225815811 -1194974568 1874176917 679202349 -1741588030 -1062385681 1490993585 428607904 1919601489 -1946757903 -27156414 -1973914317 -2001070731 319982248 -1681088483 -1361106235 1252772578 -108333657 1144438921 1036105264 -2114423111 -1078317847 1102226338 23908491 1126134829 1150043320 -2018789147 -868745827 1407432322 538686495 1946118817 -1810161984 135956833 -1674205151 -1538248318 1082513827 -455734491 626779336 171044845 797824181 968869026 1766693207 -1559405063 207288144 -1352116919 -1144828775 1798021602 653192827 -1843752867 -1190560040 1260654389 70094349 1330748738 1400843087 -1563375471 -162532384 -1725907855 -1888440239 680619202 -1207821037 -527201835 -1735022872 2032742589 297719717 -1964504990 -1666785273 663677033 -1003108240 -339431207 -1342539447 -1681970654 1270457195 -411513459 858943736 447430277 1306374013 1753804290 -1234788993 519015297 -715773696 -196758399 -912532095 -1109290494 -2021822589 1163854213 -857968376 305885837 -552082539 -246196702 -798279241 -1044475943 -1842755184 1407736169 -435019015 972717154 537698139 1510415293 2048113432 -736438571 1311674861 575236290 1886911151 -1832819855 54091296 -1778728559 -1724637263 791601474 -933035789 -141434315 -1074470104 -1215904419 2004592773 788688354 -1501686169 -712997815 2080283312 1367285497 -847398487 519887010 -327511477 192375533 -135135944 57239589 -77896355 -20656766 -98553121 -119209887 -217763008 -336972895 -554735903 -891708798 -1446444701 1956813797 510369096 -1827784403 -1317415307 1149767586 -167647721 982119865 814472144 1796592009 -1683903143 112688866 -1571214277 -1458525411 1265227608 -193297803 1071929805 878632002 1950561807 -1465773487 484788320 -980985167 -496196847 -1477182014 -1973378861 844406421 -1128972440 -284566019 -1413538459 -1698104478 1183324359 -514780119 668544240 153764121 822308361 976072482 1798380843 -1520513971 277866872 -1242647099 -964780227 2087539970 1122759743 -1084667583 38092160 -1046575423 -1008483263 -2055058686 1231425347 -823633339 407792008 -415841331 -8049323 -423890654 -431939977 -855830631

Q4) Write a program to display the flag of Nepal using symbolic/HEX character in C

//note=> not similar to question

#include<stdio.h>

void triangleShape(int n);

void flagPole(int n);

int main(){

    int row;

    printf("Enter number of rows: ");

    scanf("%d", &row);

    triangleShape(row);

    triangleShape(row);

    return 0;

}

void triangleShape(int n){

    int i,j;

    for(i=1;i<=n;i++){

        for(j=1;j<=i;j++){

            printf("\* ");

        }

        printf("\n");

    }

}

**Output**

Enter number of rows: 3

\*

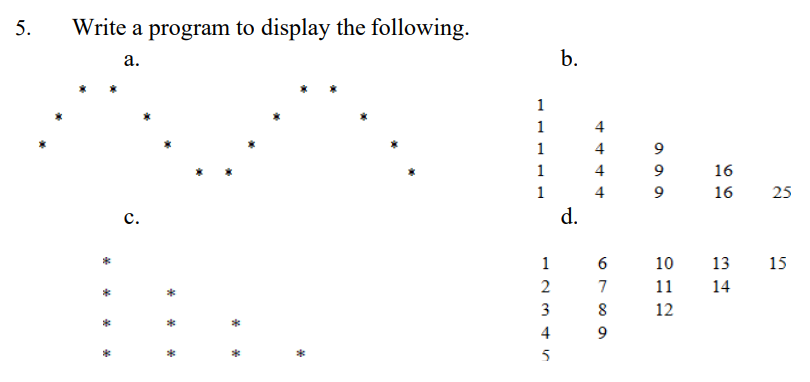
\* \*

\* \* \*

\*

\* \*

\* \* \*



a)

#include<stdio.h>

int main(){

    for(int i=1;i<=4;i++){

        for(int j=1;j<=16;j++){

            if(i==1 && (j==4 || j==5 || j==12 || j==13)){

               printf("  \*  ");

            }

            if(i==2 && (j==3 || j==6 || j==11 || j==14)){

               printf("  \*  ");

            }

            if(i==3 && (j==2 || j==7 || j==10 || j==15)){

               printf("  \*  ");

            }

            if(i==4 && (j==1 || j==8 || j==9 || j==16)){

               printf("  \*  ");

            }

            if(i==1 && (j<4 || (j>5 && j<12) || j>13)){

                printf("    ");

            }

            else{

                printf("    ");

            }

        }

    printf("\n");}

    return 0;}

**OUTPUT**

\* \* \* \*

\* \* \* \*

\* \* \* \*

\* \* \* \*

b)

#include<stdio.h>

int main(){

    int rows=5;

    for(int i=1;i<=rows;i++){

        for(int j=1;j<=i;j++){

            printf("%d\t",j\*j);

        }

        printf("\n");

    }

    return 0;

}

output

1

1 4

1 4 9

1 4 9 16

1 4 9 16 25

c)

#include<stdio.h>

int main(){

    int rows=4;

    for(int i=1;i<=rows;i++){

        for(int j=1;j<=i;j++){

            printf("\*\t");

        }

        printf("\n");}

    return 0;}

**Output**

\*

\* \*

\* \* \*

\* \* \* \*

d)

#include<stdio.h>

int main(){

  int i,j,k;

  for(i=1;i<=5;i++){

    k = i;

    for(j=1;j<=6-i;j++){

      printf("%d\t", k);

      k += 6-j;}

    printf("\n");}

  return 0;}

**OUTPUT**

1 6 10 13 15

2 7 11 14

3 8 12

4 9

5

**LAB SHEET #6**

1)Write a program to add, subtract, multiply and divide two integers using user defined type function with return type.

#include<stdio.h>

int add(int a,int b){

    int sum;

    sum=a+b;

    printf("sum is %d\n",sum);

}

int sub(int a,int b){

    int subb;

    subb=a-b;

    printf("subtraction is %d\n",subb);

}

int mul(int a,int b){

    int mull;

    mull=a\*b;

    printf("multiplication is %d\n",mull);

}

int div(float a,float b){

    float divv;

    divv=a/b;

    printf("division is %0.2f",divv);

}

int main(){

    int a,b;

    printf("enter a:");

    scanf("%d",&a);

    fflush(stdin);

    printf("enter b:");

    scanf("%d",&b);

    add(a,b);sub(a,b);mul(a,b);div(a,b);

    return 0;

}

**Output**

enter a:3

enter b:2

sum is 5

subtraction is 1

multiplication is 6

division is 1.50

Q2) Write a program to calculate sum of first 50 natural numbers using recursive function

#include<stdio.h>

int recursion(int n);

int main(){

    int n;

    printf("enter number of term yo get its sum:");

    scanf("%d",&n);

    printf("sum of %d natural number is :%d",n,recursion(n));

    return 0;

}

int recursion(int n){

    int sum=1;

    if(n>1){

        sum=n+recursion(n-1);

    }

    return sum;

}

**output**

enter number of term yo get its sum:50

sum of 50 natural number is :1275

Q3) Define a function named fact() to calculate factorial of a number n and then write a program that uses this function fact() to calculate combination and permutation.

#include<stdio.h>

int fact(int n);

int permutation(int n,int r);

int combination(int n,int r);

int main(){

    int num,n,r;

    printf("enter number to get its factorail:");

    scanf("%d",&num);

    printf("factorial of %d is :%d\n",num,fact(num));

    printf("enter n:");

    scanf("%d",&n);

    printf("enter r:");

    scanf("%d",&r);

    permutation(n,r);

    combination(n,r);

    return 0;

}

int fact(int n){

    int f=1;

    if(n>1){

        f=n\*fact(n-1);

    }

    return f;

}

int permutation(int n,int r){

    int pmt;

    pmt=fact(n)/fact(n-r);

    printf("permutaion is %d\n",pmt);}

int combination(int n,int r){

    int cmb;

    cmb=fact(n)/(fact(r)\*fact(n-r));

    printf("combination is %d",cmb);

}

**output**

enter number to get its factorail:4

factorial of 4 is :24

enter n:5

enter r:3

permutaion is 60

combination is 10

Q4) Write a recursive function to generate Fibonacci series

#include<stdio.h>

void printFibonacci(int n){

    static int n1=0,n2=1,n3;

    if(n>0){

         n3 = n1 + n2;

         n1 = n2;

         n2 = n3;

         printf("%d ",n3);

         printFibonacci(n-1);

    }

}

int main(){

    int n;

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

    scanf("%d",&n);

    printf("Fibonacci Series: ");

    printf("%d %d ",0,1);

    printFibonacci(n-2

  return 0;

}

**output**

Enter the number of elements: 9

Fibonacci Series: 0 1 1 2 3 5 8 13 21

Q5) Write a program that illustrates use of local, global and static variables

#include<stdio.h>

int staticc(){

    static int i=0;//A static variable preserves its previous value and it is initialized at compilation time

    i++;

    return i;

}

int data=8;//global variable can be accessed from anywhere

int main(){

    printf("%d\n",staticc());

    printf("%d\n",staticc());

    printf("%d\n",data);

    int a=4;//the local variable is a variable that is declared within a function

    printf("%d",a);

    return 0;

}

**output**

1

2

8

4

**LAB SHEET #7**

Q1) Write a program to enter 10 floating numbers in an array and display it.

#include<stdio.h>

int main(){

    float array[9];

    for(int i=0;i<10;i++){

        printf("enter %d number of array:",i+1);

        scanf("%f",&array[i]);

    }

    for(int i=0;i<10;i++){

        printf("number %d of array is :%0.1f\n",i+1,array[i]);}

    return 0;

}

**output**

enter 1 number of array:1

enter 2 number of array:2

enter 3 number of array:3

enter 4 number of array:4

enter 5 number of array:5

enter 6 number of array:6

enter 7 number of array:7

enter 8 number of array:8

enter 9 number of array:9

enter 10 number of array:1

number 1 of array is :1.0

number 2 of array is :2.0

number 3 of array is :3.0

number 4 of array is :4.0

number 5 of array is :5.0

number 6 of array is :6.0

number 7 of array is :7.0

number 8 of array is :8.0

number 9 of array is :9.0

number 10 of array is :1.0

Q2) Write a program to display largest and smallest element of an array defined in Q.No. 1.

#include<stdio.h>

#include<math.h>

float max(float \*ptr);

float min(float \*ptr);

int main(){

    float array[9];

    float str1,str2;

    for(int i=0;i<10;i++){

        printf("enter %d number of array:",i+1);

        scanf("%f",&array[i]);

    }

    str1=max(array);

    str2=min(array);

    printf("maximum number is %0.2f\n",str1);

    printf("minimum number is %0.2f\n",str2);

    return 0;

}

float max(float \*ptr){

    static int temp=0;

    for(int i=0;i<10;i++){

        if(\*(ptr+i)>temp){

            temp=\*(ptr+i);

        }

    }

    return temp;

}

float min(float \*ptr){

    float temp=INFINITY;

    for(int i=0;i<10;i++){

        if(\*(ptr+i)<temp){

            temp=\*(ptr+i);

        }

    }

    return temp;}

output

enter 1 number of array:0

enter 2 number of array:9

enter 3 number of array:8

enter 4 number of array:7

enter 5 number of array:6

enter 6 number of array:5

enter 7 number of array:4

enter 8 number of array:3

enter 9 number of array:2

enter 10 number of array:1

maximum number is 9.00

minimum number is 0.00

Q3) Write a program to initialize one dimensional array of size 8 and display the sum and average of array elements

#include<stdio.h>

float sum(float \*ptr);

float avg(float \*ptr);

int main(){

    float array[8];

    for(int i=0;i<8;i++){

        printf("enter number %d of array:",i+1);

        scanf("%f",&array[i]);

    }

    sum(array);

    avg(array);

    printf("sum is %0.2f\n",sum(array));

    printf("average is %0.2f",avg(array));

    return 0;

}

float sum(float \*ptr){

    int j=0;

    for(int i=0;i<8;i++){

        j+=\*(ptr+i);

    }

    return j;

}

float avg(float \*ptr){

    float j=0;

    float arg;

    for(int i=0;i<8;i++){

        j+=\*(ptr+i);

    }

    arg=j/8;

    return arg;

}

output

enter number 1 of array:1

enter number 2 of array:2

enter number 3 of array:3

enter number 4 of array:4

enter number 5 of array:5

enter number 6 of array:6

enter number 7 of array:7

enter number 8 of array:8

sum is 36.00

average is 4.5

Q4) Write a program to read two matrices of order 3 \* 2, add them and display the resultant matrix in matrix form

#include<stdio.h>

int main(){

    int matrix1[3][2];

    int matrix2[3][2];

    for(int i=0;i<3;i++){

        for(int j=0;j<2;j++){

            char c;

            if(i==0){

                c='a';

            }

            else if(i==1){

                c='b';

            }

            else if(i==2){

                c='c';

            }

            printf("enter %c%d%d element:",c,i+1,j+1);

            scanf("%d",&matrix1[i][j]);

        }

    }

    printf("\n\*\*\*enter 2nd matrix\*\*\*\n\n");

    for(int i=0;i<3;i++){

        for(int j=0;j<2;j++){

            char c;

            if(i==0){

                c='a';

            }

            else if(i==1){

                c='b';

            }

            else if(i==2){

                c='c';

            }

            printf("enter %c%d%d element:",c,i+1,j+1);

            scanf("%d",&matrix2[i][j]);

        }

    }

    printf("\nsum of two matrix is\n \n");

    for(int i=0;i<3;i++){

        for(int j=0;j<2;j++){

            printf("%5d",matrix1[i][j]+matrix2[i][j]);

        }

        printf("\n");

    }

    return 0;

}

**output**

enter b21 element:2

enter b22 element:6

enter c31 element:85

enter c32 element:23

sum of two matrix is

10 8

5 12

132 57

Q5) Write a program to multiply two 3\*3 matrix

#include<stdio.h>

int main(){

    int matrix1[3][3];

    int matrix2[3][3];

    int matrix[3][3];

    int sum=0;

    for(int i=0;i<3;i++){

        for(int j=0;j<3;j++){

            char c;

            if(i==0){

                c='a';

            }

            else if(i==1){

                c='b';

            }

            else if(i==2){

                c='c';

            }

            printf("enter %c%d%d element:",c,i+1,j+1);

            scanf("%d",&matrix1[i][j]);

        }

    }

    printf("\n\*\*\*enter 2nd matrix\*\*\*\n\n");

    for(int i=0;i<3;i++){

        for(int j=0;j<3;j++){

            char c;

            if(i==0){

                c='a';

            }

            else if(i==1){

                c='b';

            }

            else if(i==2){

                c='c';

            }

            printf("enter %c%d%d element:",c,i+1,j+1);

            scanf("%d",&matrix2[i][j]);

        }

    }

    printf("\nmultiplication of two matrix is\n \n");

    for(int i=0;i<3;i++){

        for(int j=0;j<3;j++){

            for(int k=0;k<3;k++){

                sum+=matrix1[i][k]\*matrix2[k][j];

            }

            matrix[i][j]=sum;

            sum=0;

        }

        printf("\n");

    }

    for(int i=0;i<3;i++){

        for(int j=0;j<3;j++){

            printf("%5d",matrix[i][j]);

        }

        printf("\n");

    }

    return 0;}

**output**

enter a11 element:1enter a12 element:2enter a13 element:3enter b21 element:4enter b22 element:5enter b23 element:6enter c31 element:7enter c32 element:8enter c33 element:9

\*\*\*enter 2nd matrix\*\*\*enter a11 element:1enter a12 element:2enter a13element:3enterb21element:4enter b22 element:5enter b23 element:6enter c31 element:7enter c32 element:8enter c33 element:9

multiplication of two matrix is

30 36 42

66 81 96

102 126 150

Q6) Write a program to read a string and check for palindrome without using string related function (a string is palindrome if its half is mirror by itself eg: abcdcba).

#include<stdio.h>

#include<string.h>

int main(){

    char str[50];

    int len,s=1;

    printf("enter a word to check for pallindrome:");

    scanf("%s",&str);

    len=strlen(str);

    for(int i=0;i<len/2;i++){

        if(str[i] != str[len-i-1]){

            s=0;

            break;

        }

    }

    if(s==1){

        printf("string is pallindrome.\n");

    }

    else{

        printf("string is not a pallindrome.\n");

    }

    return 0;

}

**output**

enter a word to check for pallindrome:neeraj

string is not a pallindrome.

enter a word to check for pallindrome:aoa

string is pallindrome.

**LAB SHEET #8**

Q1) Write a program to find biggest among three numbers using pointer.

#include<stdio.h>

int main(){

    int n1,n2,n3,\*ptr1,\*ptr2,\*ptr3,x,y;

    printf("enter three number:");

    scanf("%d %d %d",&n1,&n2,&n3);

    ptr1=&n1;

    ptr2=&n2;

    ptr3=&n3;

    if(\*ptr1>\*ptr2){

        x=\*ptr1;}

    if(\*ptr2>\*ptr1){

        x=\*ptr2;}

    if(\*ptr1==\*ptr2){

        x=\*ptr1;}

    if(\*ptr2>\*ptr3){

        y=\*ptr2;}

    if(\*ptr3>\*ptr2){

        y=\*ptr3;}

    if(\*ptr2=\*ptr3){

        y=\*ptr2;}

    if(x>y){

        printf("greatest number is %d",x);}

    if(y>x){

        printf("greatest number is %d",y);}

    if(x==y){

        printf("number are same,therefore greatest no. is %d",x);

    }

    return 0;}

**output**

enter three number:1 2 3

greatest number is 3

Q2) Write a program to find the sum of all the elements of an array using pointers

#include<stdio.h>

int sum(int a[]);

int main(){

    int array[5];

    for(int i=0;i<5;i++){

        printf("enter %d element of array:",i+1);

        scanf("%d",&array[i]);

    }

    printf("sum is %d",sum(array));

    return 0;

}

int sum(int a[]){

    int \*ptr=a;

    int sum=0;

    for(int i=0;i<5;i++){

        sum+=\*ptr;

        ptr++;

    }

    return sum;

}

**output**

enter 1 element of array:1

enter 2 element of array:2

enter 3 element of array:3

enter 4 element of array:4

enter 5 element of array:5

sum is 15

Q3) Write a program to swap value of two variables using pointer

#include<stdio.h>

int main(){

    int var1;

    int var2;

    printf("enter a digit 1: ");

    scanf("%d",&var1);

    printf("enter a digit 2: ");

    scanf("%d",&var2);

    int \*ptr1=&var1;

    int \*ptr2=&var2;

    printf("before swap\n");

    printf("var1:%d\n",var1);

    printf("var2:%d\n",var2);

    printf("after swap\n");

    var1=\*ptr2;

    var2=\*ptr1;

    printf("var1:%d\n",var1);

    printf("var2:%d\n",var2);

    return 0;

}

**output**

enter a digit 1: 12

enter a digit 2: 45

before swap

var1:12

var2:45

after swap

var1:45

var2:45

Q4) Write a program to read a sentence and count the number of characters &words in that sentence.

#include<stdio.h>

int main(){

    char string[200];

    int words=0,character=0;

    printf("enter a sentence:");

    gets(string);

    for(int i=0;string[i]!='\0';i++){

        if(string[i]==' ' || string[i]=='\n'){

            words++;

        }

        character++;

    }

    printf("number of characters are : %d\n",character);

    printf("number of words are %d",words+1);

    return 0;

}

**output**

enter a sentence:hi my name is neeraj

number of characters are : 20

number of words are 5

Q5) Write a program to read a sentence & delete all the white spaces. Replace all “.” by “:”.

#include<stdio.h>

#include<string.h>

int main(){

    char string[200];

    int len=200;

    len = sizeof(string)/sizeof(string[0]);

    printf("enter a sentence:");

    gets(string);

    for(int i = 0; i < len; i++){

        if(string[i] == ' '){

            for(int j=i;j<len;j++)

        {

            string[j]=string[j+1];

        }

        len--;

        }

    }

    for(int i=0;string[i]!='\0';i++){

        if(string[i]=='.'){

            string[i]=':';

        }

    }

    printf("new string is : %s",string);

    return 0;

}

**output**

enter a sentence:my name is. neeraj singh

new string is : mynameis:neerajsingh

Q6) Write a program to copy one string to another string with and without using string handling function.

#include<stdio.h>

char \*copy(char \*t,const char \*s){

    char \*temp;

    temp=t;

    while(\*s!='\0'){

    \*t=\*s;

    s++;

    t++;

    }

    \*t='\0';

    return temp;

}

int main(){

    char \*target="neerajsingh";

    char \*store;

    copy(store,target);

    printf("copy string in store string is : %s",store);

    return 0;

}

**output**

copy string in store string is : neerajsingh

Q7) Write a program to concatenate two strings.

#include<stdio.h>

int main(){

    char str1[200];

    char str2[200];

    printf("enter string 1:");

    gets(str1);

    printf("enter string 2:");

    gets(str2);

    printf("%s %s",str1,str2);

    return 0;

}

**output**

enter string 1:my name is

enter string 2:neeraj singh

my name is neeraj singh

Q8) Write a program to compare two strings.

#include<stdio.h>

#include<string.h>

int main(){

    char str1[50],str2[50];

    int cmp;

    printf("enter string 1:");

    scanf("%s",&str1);

    printf("enter string 2:");

    scanf("%s",&str2);

    cmp=strcmp(str1,str2);

    cmp=strcmp(str1,str2);

    if(cmp==0){

        printf("strings are equal");

    }

    else{

        printf("strings are not equal");

    }

    return 0;

}

**output**

enter string 1:neeraj

enter string 2:singh

strings are not equal

Q9) Write a program to sort 5 string words stored in an array of pointers.

#include<stdio.h>

#include<string.h>

int main(){

   int i,j,count;

   char str[25][25],temp[25];

   puts("How many strings u are going to enter?: ");

   scanf("%d",&count);

   puts("Enter Strings one by one: ");

   for(i=0;i<=count;i++)

      gets(str[i]);

   for(i=0;i<=count;i++)

      for(j=i+1;j<=count;j++){

         if(strcmp(str[i],str[j])>0){

            strcpy(temp,str[i]);

            strcpy(str[i],str[j]);

            strcpy(str[j],temp);

         }

      }

   printf("Order of Sorted Strings:");

   for(i=0;i<=count;i++)

      puts(str[i]);

   return 0;

}

**output**

How many strings u are going to enter?:

5

Enter Strings one by one:

z

x

v

m

r

Order of Sorted Strings:

m

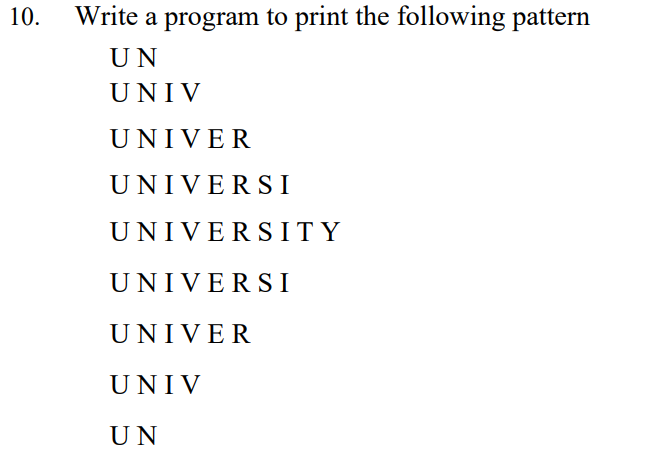
r

v

x

z

**Q10)**



#include<stdio.h>

int main(){

    int length;

    char str[]="UNIVERSITY";

    for(int i=1;i<6;i++){

        for(int j=1;j<=2\*i;j++){

            printf(" %c ",str[j-1]);

        }

        printf("\n");

    }

    for(int i=1;i<5;i++){

        for(int j=1;j<=(10-(2\*i));j++){

            printf(" %c ",str[j-1]);

        }

        printf("\n");

    }

    return 0;

}

**output**

U N

U N I V

U N I V E R

U N I V E R S I

U N I V E R S I T Y

U N I V E R S I

U N I V E R

U N I V

U N

**LAB SHEET #9**

Q1)Create a structure named company which has name, address, phone and noOfEmployee as member variables. Read name of company, its address, phone and noOfEmployee. Finally display these members’ value

#include<stdio.h>

typedef struct company{

    char name[20];

    char address[50];

    int phone;

    int noOfEmployee;

}com;

int main(){

    com e1;

    printf("enter name of e1:");

    scanf("%s",e1.name);

    printf("enter address of e1:");

    scanf("%s",e1.address);

    printf("enter phone no. of e1:");

    scanf("%d",&e1.phone);

    printf("enter no of employee :");

    scanf("%d",&e1.noOfEmployee);

    printf("\n\*\*\*\*\*\*\n\n");

    printf("name of e1:%s\n",e1.name);

    printf("name of e1:%s\n",e1.address);

    printf("phone no. of e1:%d\n",e1.phone);

    printf("no of employee :%d\n",e1.noOfEmployee);

    return 0;

}

**output**

enter address of e1:delhi

enter phone no. of e1:1234567890

enter no of employee :101

\*\*\*\*\*\*

name of e1:neeraj

name of e1:delhi

phone no. of e1:1234567890

no of employee :101

Q2) Write a program to enter to Cartesian coordinate points and display the distance between them

#include<stdio.h>

#include<math.h>

typedef struct plane{

    int x;

    int y;

}pln;

int main(){

    pln e1,e2;

    float d;

    printf("enter x1 :");

    scanf("%d",&e1.x);

    printf("enter y1 :");

    scanf("%d",&e1.y);

    printf("enter x2 :");

    scanf("%d",&e2.x);

    printf("enter y2 :");

    scanf("%d",&e2.y);

    d=sqrt(((e1.x-e2.x)\*(e1.x-e2.x))+((e1.y-e2.y)\*(e1.y-e2.y)));

    printf("distance between the two points is:%.2f",d);

    return 0;

}

**output**

enter x1 :1

enter y1 :2

enter x2 :1

enter y2 :5

distance between the two points is:3.00

Q3) Write a function which accepts structure as argument and returns structure to the calling program.

#include<stdio.h>

typedef struct company{

    char name[20];

    int salary;

}com;

void call(com e);

int main(){

    com e1;

    printf("enter name of e1:");

    scanf("%s",e1.name);

    printf("enter salary no. of e1:");

    scanf("%d",&e1.salary);

    call(e1);

    return 0;}

void call(com e){

    printf("salary of e1 is %d\n",e.salary);

    printf("name of e1 is %s",e.name);}

**output**

enter name of e1:neeraj

enter salary no. of e1:4444

salary of e1 is 4444

name of e1 is neeraj

**Q4)** **Pass the structures defined in Question 1 into a function and read the structure member and display the values from the function (use structure pointer).**

#include<stdio.h>

typedef struct company{

    char name[20];

    char address[50];

    int phone;

    int noOfEmployee;

}com;

void pass(com e);

int main(){

    com e1;

    printf("enter name of e1:");

    scanf("%s",e1.name);

    printf("enter address of e1:");

    scanf("%s",e1.address);

    printf("enter phone no. of e1:");

    scanf("%d",&e1.phone);

    printf("enter no of employee :");

    scanf("%d",&e1.noOfEmployee);

    printf("\n\*\*\*\*\*\*\n\n");

    pass(e1);

    return 0;}

void pass(com e){

    printf("name of e1:%s\n",e.name);

    printf("name of e1:%s\n",e.address);

    printf("phone no. of e1:%d\n",e.phone);

    printf("no of employee :%d\n",e.noOfEmployee);}

**output**

enter address of e1:delhi

enter phone no. of e1:9876543211

enter no of employee :99

\*\*\*\*\*\*

name of e1:neeraj

name of e1:delhi

phone no. of e1:2147483647

no of employee :99

Q5) **Define a structure “complex” (typedef) to read two complex numbers and perform addition, subtraction of these two complex numbers and display the result.**

#include<stdio.h>

typedef struct complex{

    int real;

    int img;

}com;

int main(){

    com c1,c2;

    printf("enter real part of 1:");

    scanf("%d",&c1.real);

    printf("enter imginary part of 1:");

    scanf("%d",&c1.img);

    printf("enter real part of 2:");

    scanf("%d",&c2.real);

    printf("enter imginary part of 2:");

    scanf("%d",&c2.img);

    printf("addtion of complex number is :%d+i%d\n",c1.real+c2.real,c1.img+c2.img);

    printf("subtraction of complex number is:%d-i%d",c1.real-c2.real,c1.img-c2.img);

    return 0;

}

**output**

enter real part of 1:2

enter imginary part of 1:5

enter real part of 2:6

enter imginary part of 2:3

addtion of complex number is :8+i8

subtraction of complex number is:-4-i2

Q6)**Write a program to read RollNo, Name, Address, Age & average-marks of 12 students in the BCT class and display the details from function**

#include<stdio.h>

typedef struct BCT{

    int rollno,age,avg\_mks;

    char name[20], address[20];

}bct;

void display(bct s[]);

int main(){

    bct student[12];

    for(int i=0;i<12;i++){

        printf("enter name of %d student: ",i+1);

        scanf("%s",student[i].name);

        printf("enter address of %d student: ",i+1);

        scanf("%s",&student[i].address);

        printf("enter roll no. of %d student: ",i+1);

        scanf("%d",&student[i].rollno);

        printf("enter age of %d student: ",i+1);

        scanf("%d",&student[i].age);

        printf("enter avg. marks of %d student :",i+1);

        scanf("%d",&student[i].avg\_mks);

    }

    printf("\n\*\*\*\*\n\n");

    display(student);

    return 0;

}

void display(bct s[]){

    for(int i=0;i<12;i++){

        printf("name of %d student %s\n",i+1,s[i].name);

        printf("address of %d student %s\n",i+1,s[i].address);

        printf("roll no. of %d student %d\n",i+1,s[i].rollno);

        printf("age of %d student %d\n",i+1,s[i].age);

        printf("avg. marks of %d student %d\n",i+1,s[i].avg\_mks);

    }

}

**output**

enter name of 1 student: neeraj

enter address of 1 student: delhi

enter roll no. of 1 student: 123

enter age of 1 student: 21

enter avg. marks of 1 student :88

\*\*\*\*

name of 1 student neeraj

address of 1 student delhi

roll no. of 1 student 123

age of 1 student 21

avg. marks of 1 student 88

Q7)Write a program to show programming examples with union and enumerations

#include <stdio.h>

#include <string.h>

union Student{

    int id;

    char name[34];};

int main(){

    union Student s1;

    s1.id = 1;

    strcpy(s1.name, "neeraj");

    printf("\nfrom union\n\n");

    printf("The id is %d \n", s1.id);//only access 1 at a time

    printf("The name is %s \n", s1.name);

    enum subjects{math,physics,chemistry};//assign integer values

    printf("\nfrom enum\n\n");

    printf("%d\n",math);

    printf("%d\n",physics);

    printf("%d",chemistry);

    return 0;}

**output**

from union

The id is 1919247726

The name is neeraj

from enum

0

1

2

**LAB SHEET #10**

Q1)**Write characters into a file “filec.txt”. The set of characters are read form the keyboard until an enterkey is pressed (use putc() and getc() function).**

#include<stdio.h>

int main(){

    FILE \*ptr;

    ptr=fopen("filec.txt","w");

    char string[100];

    printf("enter a sentence:\n");

    gets(string);

    fprintf(ptr,"%s",string);

    //by putc

    fputc('h',ptr);

    fclose(ptr);

    return 0;

}

**output in code editor**

enter a sentence:

neeraj sing

**output in file->”filec.txt”**

neeraj singh

Q2) **Read characters from file “filec.txt” created in question 1. Also count the number of characters in the file (use fputs() and fgets() function).**

#include<stdio.h>

int main(){

    FILE \*ptr;

    ptr=fopen("filec.txt","r");

    if(ptr==NULL){

        printf("file not found");

    }

    char c;

    int cot=0;

    c=fgetc(ptr);

    while(c!=EOF){

        printf("%c",c);

        c=fgetc(ptr);

        cot++;

    }

    fclose(ptr);

    if(ptr!=NULL){

        printf("\nno. of character are:%d",cot);

    }

    return 0;

}

output

neeraj singh

no. of character are:12

Q3) **Write set of strings each of length 40 into a file “stringc.txt” and display it (use fputs() and fgets() function).**

#include<stdio.h>

int main(){

    FILE \*ptr;

    char str1[40];

    char str2[40];

    printf("enter string 1: ");

    gets(str1);

    printf("enter string 2: ");

    gets(str2);

    ptr=fopen("filec.txt","w");

    fprintf(ptr,"%s",str1);

    fprintf(ptr,"%s",str2);

    fclose(ptr);

    ptr=fopen("filec.txt","r");

    char c;

    c=fgetc(ptr);

    while(c!=EOF){

        printf("%c",c);

        c=fgetc(ptr);

    }

    fclose(ptr);

    return 0;

}

**output**

enter string 1: hello

enter string 2: world

helloworld

Q4) **Write name, age and height of a person into a data file “person.txt” and read it (use fprintf() and fscanf() function)**

#include<stdio.h>

int main(){

    FILE \*ptr;

    int age;

    float height;

    char name[10];

    printf("enter name: ");

    scanf("%s",&name);

    printf("enter age: ");

    scanf("%d",&age);

    printf("enter height: ");

    scanf("%f",&height);

    ptr=fopen("person.txt","w");

    fprintf(ptr,"name is :%s\n",name);

    fprintf(ptr,"age is :%d\n",age);

    fprintf(ptr,"height is :%0.1f\n",height);

    fclose(ptr);

    ptr=fopen("person.txt","r");

    char c;

    c=fgetc(ptr);

    while(c!=EOF){

        printf("%c",c);

        c=fgetc(ptr);

    }

    fclose(ptr);

    return 0;

}

**output**

enter name: neeraj

enter age: 40

enter height: 9

name is :neeraj

age is :40

height is :9.0