**Name-:Gavendra Pratap singh**

**Uni. Roll Number-:2215000688**

**//write the C program to check the whether a number is negative,positive and zero.**

```
#include <stdio.h>
int main()
{
   int a;
   printf("enter the value\n");
   scanf("%d",&a);

   if (a<0)
   {
      printf("%d is negative",a);
   }
   else if (a>0)
   {
      printf("%d is positive",a);
   }
   else if (a==0)
   {
      printf("%d is zero",a);
   }
  else
  {
     printf("please enter the valid number");
  }
}
```

**//write a C program to check whether a numder is even or odd.**

```
#include <stdio.h>
int main()
{
   int a;
   printf("enter the value\n");
   scanf("%d",&a);
   if(a%2==0)
   {
      printf("%d is even number",a);
   }
   else
   {
      printf("%d is odd number",a);
   }
}
```

**//write a C program to check whether a character is alphabet or not**.

```
#include <stdio.h>
char main()
{
   char c;
   printf("upload the value\n");
   scanf("%c",&c);
   if((c>='a'&&c<='z')||(c>='A'&&c<='Z'))
   {
      printf("%c is an alphabet",c);
   }
   else
   {
      printf("%c is not an alphabet",c);
   }
}
```

**//write a C program to input any alphabet and check whether it is vowel or consonent.**

```
#include <stdio.h>
char main()
{
    char c;
    printf("upload a value\n");
    scanf("%c",&c);

  if (c=='a'||c=='e'||c=='i'||c=='o'||c=='u'||c=='A'||c=='E'||c=='I'||c=='O'||c=='U')
  {
     printf("%c is a vowel",c);
  }
  else
  {
     printf("%c is consonent",c);
  }

}
```

//write a C program to input any charater and check whether it is alphabet,digit or special character.

```
#include <stdio.h>
int main()
{
   char c;
   printf("upload a value\n");
   scanf("%c",&c);
   if((c>='a'&&c<='z')||(c>='A'&&c<='Z'))
   {
   printf("%c is an alphabet",c);
   }
   else if (c>='0'&&c<='9')
   {
      printf("%c is a number",c);
   }
   else
   {
      printf("%c is a special character",c);
   }
}
```

//write a program to find the maximum number

```
#include <stdio.h>
int main()
{
   int a,b;
   printf("enter the value a and b=");
   scanf("%d %d",&a,&b);
   if (a>b)
   printf("a is maximum");

   else
   printf("b is maximum");

}
```

//write  a program to check the which numberbbis maximum in 3 number

```
#include <stdio.h>
int main ()
{
   int a,b,c;
   printf("enter the value of a,b and c");
   scanf("%d %d %d",&a,&b,&c);
   if ((a>b)&&(a>c))
   {
      printf("a is maximum");
   }
   else if((b>a)&&(b>c))
   {
      printf("b is maximum");
   }
   else
   {
      printf("c is maximum");
   }
}
```

//write a C program to check whether a number is divisible by 5 and 11 or not.

```
#include <stdio.h>
int main()
{
   int a;
   printf("enter the value\n");
   scanf("%d",&a);
   if ((a%5==0)&&(a%11==0))
   {
   printf("%d is divisible by 5 and 11",a);
   }
   else
   {
      printf("%d is not a valid number",a);
   }
}
```

//write a C program to check whether a year is leap year or not.

```
#include <stdio.h>
int main()
{
   int a;
   printf("enter e value\n");
   scanf("%d",&a);
   if(a%400==0)
   {
      printf("%d is a leap year",a);
   }
   else if(a%100==0)
   {
      printf("%d is not a leap year",a);
   }
   else if(a%4==0)
   {
      printf("%d is a leap year",a);
   }
   else
   {
      printf("%d is nat a leap year",a);
   }
```

```
}
```

//write a program to check the character is in upper or in lower case

```
#include <stdio.h>
int main()
{
   char ch;
   printf("enter the value\n");
   scanf("%c",&ch);
   if(ch>='a'&&ch<='z')
   {
   printf("%c is lowercase",ch);
   }
   else if(ch>='A'&&ch<='Z')
   {
   printf("%c is uppercase",ch);
   }
   else
   {
   printf("%c is invalid",ch);
   }
}
```

//write a program to print counting 1 to 5 by while loop

```
#include <stdio.h>
int main()
{
   int i=1;
   while(i<=5)
   {
      printf("value of i is %d\n",i);
      i++;
   }
   return 0;
}
```

//write a program to print the counting 1 to 4 by while loop

```
#include<stdio.h>
int main()
{
   int count=1;
   while(count<=4)
   {
      printf("%d",count);
      count++;
   }
```

```
    return 0;
}



// write a program to create a inifinate loop by while loop


#include <stdio.h>


int main()
{
    int var=6;
    while(var>=5)
    {
        printf("%d",var);
        var++;
    }
    return 0;
}




return 0;
}
```

```
// write a program of while loop
#include <stdio.h>
int main()
{
   int i=1,j=1;
   while(i<=4||j<=3)
   {
      printf("%d %d\n",i,j);
   i++;
   j++;
   }
   return 0;
}

//write a program to make pattern
#include <stdio.h>

int main()
{
  int i,j,row;
  printf("input the number of row:");
  scanf("%d",&row);
  for(i=1;i<=row;i++)
 {
   for(j=1;j<=i;j++)
   {
      printf("$");
   }
   printf("\n");
   }
 }
```

```
  //write a program to make pattern



#include <stdio.h>


int main()
{
   int i,j,rows;
   printf("input number of rows:");
   scanf("%d",&rows);
   for(i=1;i<=rows;i++)
   {
      for(j=1;j<=i;j++)
      {
      printf("%d",i);
      }
      printf("\n");
   }
}
```

```
//write a program for swapping
#include <stdio.h>
int main()
{
   int a,b,l;
   printf("enter the two number\n");
   scanf("%d%d",&a,&b);
   printf("before the swap %d and %d\n",a,b);
   l=a;
   a=b;
   b=l;
   printf("after the swap %d and %d",a,b);
   return 0;
}
```

```
//write a program for swaping the value of two variable witjot using 3rd variable
#include <stdio.h>
int main()
{
   int a,b;
   printf("enter the two number\n");
   scanf("%d%d",&a,&b);
   printf("before the swap %d and %d\n",a,b);
   a=a+b;
   b=a-b;
   a=a-b;
   printf("after the swap %d and %d",a,b);
   return 0;
```

```
}
//write a program for swaping by multiply and divide operator

#include <stdio.h>
int main()
{
   int a,b;
   printf("enter the two number\n");
   scanf("%d%d",&a,&b);
   printf("before the swap %d and %d\n",a,b);
   a=a*b;
   b=a/b;
   a=a/b;
   printf("after the swap %d and %d",a,b);
   return 0;
}

//write a program to make the pyramid pattern

#include <stdio.h>
int main()
{
   int i,j,rows;
   printf("enter the number of rows:");
   scanf("%d",&rows);
   for(i=1;i<=rows;i++)
   {
      for(j=1;j<=i;j++)
      {
         printf("*");
      }
```

```
        printf("\n");
    }
    return 0;
}
\\ write a program to make a pyramid pattern

#include <stdio.h>
int main()
{
    int i,space,rows,k=0;
    printf("enter the nuber of rows:");
    scanf("%d",&rows);
    for(i=1;i<=rows;++i,k=0)
    {
        for(space=1;space<=rows-1;++space)
        {
            printf(" ");
        }
        while(k!=2*i-1)
        {
            printf("%d",space);
            ++k;
        }
        printf("\n");
    }
    return 0;
}
```

//write a program to make pyramid pattern

```
#include <stdio.h>
int main()
{
   int i,j,n;
   printf("input the number of rows for the pattern:");
   scanf("%d",&n);
   for(i=0;i<n;i++)
   {
      for(j=1;j<=n-i;j++)
      printf(" ");
      {
         for(j=1;j<=2*i-1;j++)
         printf("*");
      }
      printf("\n");
   }
}
```

//write a program to check the gib=ven number is palindrome or not

```
#include <stdio.h>
int main()
{
   int n,temp,sum=0,r;
   printf("enter the number");
   scanf("%d",&n);
   temp=n;
   while(n>0)
   {
      r=n%10;
      sum=(sum*10)+r;
      n=n/10;
   }
   if(temp==sum)
   {
      printf("the number is palindrome");
   }
   else
   {
      printf("tne number is not palindrome");
   }
   return 0;

}
```

//write a program to print finonacci series

```
#include <stdio.h>
int main()
{
   int n,a=0,b=1,i,c;
   printf("enter the number of terms...");
   scanf("%d",&n);
   for(i=1;i<=n;i++)
   {
      printf("%d ",a);
      c=a+b;
      a=b;
      b=c;
   }

}
```

//write a program to check the given number is Armstrong or not

```
#include <stdio.h>
 int main()
 {
     int n,arm=0,temp,r;
     printf("enter any number");
     scanf("%d",&n);
     temp=n;
     while(n>0)
     {
        r=n%10;
        arm=(r*r*r)+arm;
        n=n/10;
     }
     if(temp=arm)
     {
        printf("the number is armstrong");
     }
     else
     {
        printf("the number is not arm strong");
     }
 }
```

//write a program to check  the given number is perfect number or not

```
#include <stdio.h>
int main()
{
   int n,sum=0,i;
   printf("enter any number");
   scanf("%d",&n);
   for(i=1;i<n;i++)
   {
      if(n%i==0)
      {
         sum=sum+i;
      }
   }
   if (sum==n)
   {
      printf("perfect number");
   }
   else
   {
      printf("not");
   }
}
```

//write a program to initialization the array

```
#include<stdio.h>
int main()
{
   int i=0;
   int marks[5];
   marks[0]=80;
   marks[1]=60;
   marks[2]=70;
   marks[3]=85;
   marks[4]=75;
   for(i=0;i<5;i++)
   {
      printf("%d\n",marks[i]);
   }
   return 0;
}
```

//write a program to initialization the array

```
#include<stdio.h>
int main()
{
   int i=0;
   int marks[5]={20,30,40,50,60};
   for(i=0;i<5;i++)
   {
      printf("%d\n",marks[i]);
   }
   return 0;
}
```

//write aprogram for transverse an array

```
#include<stdio.h>
int main()
{
   int values[5];
   printf("enter 5 integers:");
   for (int i=0;i<5;++i)
   {
      scanf("%d",&values[i]);
   }
```

```
    printf("displaying integers:");
    for(int i=0;i<5;++i)
    {
        printf("%d\n",values[i]);
    }
}

//wite a program for practicing the array

#include<stdio.h>
int main()
{
   int marks[10],i,sum=0,n;
   double average;
   printf("enter the number of elements:");
   scanf("%d",&n);
   for(i=0;i<n;i++)
   {
      printf("enter number%d:",i+1);
      scanf("%d",&marks[i]);
      sum+=marks[i];
   }
   average=(double)sum/n;
   printf("average = %.2lf",average);
   return 0;
}
```

```
//write a program of recursion insert speceffic position
#include<stdio.h>
#define MAX_SIZE 100
//*function  declaration to find the sum of array//
int sum(int arr[],int start,int len);
int main()
{
   int arr[MAX_SIZE];
   int N,i,sumofarray;
   printf("enter the size of array:");
   scanf("%d",&N);
   printf("enter elements in the array:");
   for(i=0;i<N;i++)
   {
      scanf("%d",&arr[i]);
   }
   sumofarray = sum(arr,0,N);
   printf("sum of the elements:%d",sumofarray);
   return 0;
}
int sum(int arr[],int start,int len)
{
   if(start>=len)
   return 0;
   return (arr[start]+sum(arr,start+1,len));
}
```

```c
//write a program of basic array
#include <stdio.h>
int main()
{
   int marks[5];
   for(int i=0;i<5;i++)
   {
      printf("enter the value   of %d element of the array \n",i);
      scanf("%d",&marks[i]);
   }
   for(int i=0;i<5;i++)
    {
      printf("The value   of %d element of the array %d\n",i,marks[i]);

   }

}
```

```c
//write a program of basic array
#include <stdio.h>
int main()
{
   int marks[5]={45,54,65,76,87};
   for(int i=0;i<5;i++)
    {
      printf("The value   of %d element of the array %d\n",i,marks[i]);

   }
}
```

```
//write  a program to print the 2d array
#include <stdio.h>
int main()
{
   int marks[2][4]={{45,54,3,2},{3,2,4,5}};
   for(int i=0;i<2;i++)
   {
      for(int j=0;j<4;j++)
      {
         printf("%d ",marks[i][j]);
      }
      printf("\n");
   }
}
```

```
//write a program of transpose error
#include<stdio.h>
int main()
{
   int i,j;
   int arr[2][2];
   printf("enter the value of matrix:");
   for(i=0;i<2;i++)
   {
      for(j=0;j<2;j++)
      {
         scanf("%d",&arr[i][j]);
      }
   }
   for(i=0;i<2;i++)
   {
      for(j=0;j<2;j++)
      {
         printf("%d ",arr[i][j]);
      }
   }
   for(i=0;i<2;i++)
   {
      for(j=0;j<2;j++)
      arr[2][2]=arr[2][2];
      {
         printf("%d ",arr[i][j]);
      }
   }
}
```

```
//write  program of 2 d matrix of 2*2 order
#include<stdio.h>
int main()
{
   int i,j;
   int arr[2][2];
   printf("enter the value of matrix:");
   for(i=0;i<2;i++)
   {
      for(j=0;j<2;j++)
      {
         scanf("%d",&arr[i][j]);
      }
   }
   for(i=0;i<2;i++)
   {
      for(j=0;j<2;j++)
      {
         printf("%d ",arr[i][j]);
      }
   }
   for(i=0;i<2;i++)
   {
      for(j=0;j<2;j++)
      arr[2][2]=arr[2][2];
      {
         printf("%d ",arr[i][j]);
      }
   }
}
```

```
#include<stdio.h>
int main()
{
   int mat[3][3],trans[3][3],i,j;
   printf("enter the matrix element: ");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         scanf("%d",&mat[i][j]);
      }
   }
   {
   printf("the matrix :\n ");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         printf("%d",mat[i][j]);
      }printf("\n");
   }


   }
   {
    printf("the transpose matrix :\n ");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         trans[j][i]=mat[i][j];
      }
```

```
    }


    }
    for(i=0;i<3;i++)
    {
       for(j=0;j<3;j++)
       {
          printf("%d",trans[i][j]);
       }printf("\n");
    }
}
```

```
//write a program to check the  matrix is dioginal or not
#include <stdio.h>
int main()
{
   int mat[3][3],i,j,sum;
   printf("enter the matrix:");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         scanf("%d",&mat[i][j]);
      }
   }
   {
   printf("the matrix is :\n");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         printf("%d ",mat[i][j]);
      }printf("\n");
   }

   }
   printf("the daigonal matrix:");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         if(i==j)
         {
```

```
            printf("%d ",mat[i][j]);
            sum=sum+mat[i][j];
          }


       }
    }
}
```

```
//write a program to print 3d matrix
#include <stdio.h>
int main()
{
   int mat[3][3],i,j,sum;
   printf("enter the matrix:");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         scanf("%d",&mat[i][j]);
      }
   }
   {
   printf("the matrix is :\n");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         printf("%d ",mat[i][j]);
      }printf("\n");
   }

   }
   printf("the lower matrix is :");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         if(i>j)
         {
```

```
            printf("%d ",mat[i][j]);
            sum=sum+mat[i][j];
          }


       }
    }
}
```

```
//write a program for sum o 2 matirx
#include <stdio.h>
int main()
{
   int mat[3][3],i,j,sum;
   printf("enter the matrix:");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         scanf("%d",&mat[i][j]);
      }
   }
   {
   printf("the matrix is :\n");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         printf("%d ",mat[i][j]);
      }printf("\n");
   }

   }
   printf("the upper matrix is :");
   for(i=0;i<3;i++)
   {
      for(j=0;j<3;j++)
      {
         if(i<j)
         {
```

```
            printf("%d ",mat[i][j]);
            sum=sum+mat[i][j];
          }


       }
    }
}
```

```
//Write a program for count of vowel in string
#include<stdio.h>
int main()
{
	char s[22]="university";
	int i=0;
	int count=0;
	while(s[i]!=0)
	{
		printf("%d\n",s[i]);

			if(s[i]=='a'||s[i]=='e'||s[i]=='i'||s[i]=='o'||s[i]=='u')
			{

			   count=count+1;
			}
		i++;
		}
			printf("the number of vowels are:%d",count);

	return 0;
}
```

```
//Write a program for merge 2 string
#include<stdio.h>
#include<string.h>
int main()
{
        char a[10]="ram";
        char b[10]="ramayan";
        strcat(a,b);
        printf("string concatination=:%s\n",a);
        printf("string concatination=:%s\n",b);
        return 0;



}

//Write a program to create a pointer

#include<stdio.h>
int main()
{
   int x=55;
   int *ptr=&x;
   printf("%p\n",ptr);
   printf("%p\n",&x);
   printf("%d\n",*ptr);
   printf("%d\n",x);
}
```

```
//Write a program to create a float pointer
#include<stdio.h>
int main()
{
   float x=55;
   float *ptr=&x;
   printf("%p\n",ptr);
   printf("%p\n",&x);
   printf("%f\n",*ptr);
   printf("%f\n",x);
}
```

```
//Write a program to create a char pointer
#include<stdio.h>
int main()
{
   char x=55;
   char *ptr=&x;
   printf("%p\n",ptr);
   printf("%p\n",&x);
   printf("%c\n",*ptr);
   printf("%c\n",x);
}
```

```
//write a program to find the address of the array
#include<stdio.h>
int main()
{
   int x[5];
   int i;
   for(i=0;i<5;i++)
   {
      printf("&x[%d]=%p\n",i,&x[i]);

   }
   printf("address of array a: %p",x);
   return 0;
}
```

```
//write a program for allocation of memory
#include <stdio.h>
#include <stdlib.h>
int main()
{
   int n,i,*ptr,sum=0;
   printf("enter number of elements:");
   scanf("%d",&n);
   ptr=(int*)malloc(n*sizeof(int));//memory allocated using malloc
   if(ptr==NULL)
   {
      printf("sorry! unable to allocate memory");
      exit(0);
   }
   printf("enter elements of array:");
   for(i=0;i<n;++i)
   {
      scanf("%d",ptr+i);
      sum+=*(ptr+i);
   }
   printf("sum=%d",sum);
   free(ptr);
   return 0;
}
```

```
//write a program to study of pointer
#include<stdio.h>
int main()
{
   char *a={"car"};
    printf("%p\n",a);
    printf("%p\n",*a);
    printf("%p\n",++a);
    printf("%p\n",*(++a));
    printf("%p\n",(a+1));
}
```

```c
//Write a program to find the sum by function
#include <stdio.h>
int sum_ele(int a,int b);
int main()
{

   int arr[5];
   printf("Enter the elements of array\n");
   for(int i=0;i<5;i++)
   {
      scanf("%d",&arr[i]);
   }
   int *ptr=&arr;
   int a=*ptr;
   int b=*ptr+4;
   printf("%p\n",ptr);
   printf("%d",*ptr);
   int r=sum_ele(a,b);
   printf("%d",r);
}
int sum_ele(int a,int b)
{
   return a+b;
}
```