PRIME NUMBERS

/\*

Enter a number

23

23 is a prime number

Enter a number

23

23 is a prime number

Enter a number

1

1 is neither prime nor composite

\*/

#include<stdio.h>

#include<stdlib.h>

int main()

{

int num,flag=1,i;

printf("Enter a number\n");

scanf("%d",&num);

if(num==1)

{

printf("%d is neither prime nor composite",num);

exit(0);

}

for(i=2;i<num/2;i++)

{

if(num%i==0)

{

flag=0;

break;

}

}

if(flag==1)

printf("%d is a prime number\n",num);

else

printf("%d is not a prime number\n",num);

return 0;

}

PRIME FACTORS

/\*

Enter a number

36

Prime factors are :2 2 3 3

\*/

#include <stdio.h>

int main()

{

int i,n;

printf("Enter a number\n");

scanf("%d",&n);

printf("Prime factors are :");

for(i=2;n>1;i++)

{

while(n%i==0)

{

printf("%d ",i);

n=n/i;

}

}

return 0;

}

PRIME NUMBER INTERVALS

/\*

Enter lower and upper limits

1 50

Prime numbers between 1 and 50 are :

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47

\*/

#include<stdio.h>

#include<stdlib.h>

int main()

{

int num,flag,i,j,lower,upper;

printf("Enter lower and upper limits\n");

scanf("%d %d",&lower,&upper);

printf("Prime numbers between %d and %d are :\n",lower,upper);

for(i=lower+1;i<upper;i++)

{

flag=1;

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

{

if(i%j==0)

{

flag=0;

break;

}

}

if(flag==1)

printf("%d ",i);

}

return 0;

}

ARMSTRONG BTW INTERVALS

/\*

Enter lower and upper limits

1 1000

Armstrong numbers between 1 an 1000 are: 153 370 371 407

\*/

#include <stdio.h>

int main()

{

int n1, n2, i, temp, num, rem;

printf("Enter lower and upper limits\n");

scanf("%d %d", &n1, &n2);

printf("Armstrong numbers between %d an %d are: ", n1, n2);

for(i=n1+1; i<n2; ++i)

{

temp=i;

num=0;

while(temp!=0)

{

rem=(temp%10);

num+=rem\*rem\*rem;

temp/=10;

}

if(i==num)

{

printf("%d ",i);

}

}

return 0;

}

ARRAY SORTING

/\*

Enter the number of elements

6

Enter the elements in the array:

30 20 10 40 50 60

The Sorted Array is :

10 20 30 60 50 40

\*/

#include <stdio.h>

int main()

{

int i,a[50],n,j,k;

printf("Enter the number of elements\n");

scanf("%d",&n);

printf("Enter the elements in the array:\n");

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

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

k=n/2;

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

{

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

{

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

{

int temp;

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

}

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

{

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

{

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

{

int temp;

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

}

printf("The Sorted Array is :\n");

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

{

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

}

return 0;

}

PATTERN PRINTING

/\* Enter the value of n

5

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

1

3\*2

4\*5\*6

10\*9\*8\*7

11\*12\*13\*14\*15

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

\*/

#include <stdio.h>

int main()

{

int count=0,i,j,n;

printf("Enter the value of n\n");

scanf("%d",&n);

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

{

if(i%2!=0)

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

{

count++;

if(j<i)

printf("%d\*",count);

else

printf("%d",count);

}

}

else

{

count=count+i;

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

{

if(j<i)

printf("%d\*",count);

else

printf("%d",count);

count--;

}

count=count+i;

}

printf("\n");

}

return 0;

}

PATTERN PRINTING

/\*

Enter a number

7

1

22

333

4444

55555

666666

7777777

666666

55555

4444

333

22

1

\*/

#include<stdio.h>

int main()

{

int n,i,j;

printf("Enter a number\n");

scanf("%d",&n);

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

{

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

printf("%d",i);

printf("\n");

}

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

{

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

printf("%d",i);

printf("\n");

}

return 0;

}

TRAPEZOIDAL PATTERN

/\*

Enter the number

4

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

OUTPUT :

1\*2\*3\*4\*17\*18\*19\*20

--5\*6\*7\*14\*15\*16

----8\*9\*12\*13

------10\*11

\*/

#include <stdio.h>

int main()

{

int i,j,n,count1=0,count2,space=0;

printf("Enter the number\n");

scanf("%d",&n);

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

count2=n\*n+1;

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

{

for(j=space;j>0;j--)

printf("-");

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

printf("%d\*",++count1);

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

{

if(j>1)

printf("%d\*",count2++);

else

printf("%d",count2++);

}

count2=(count2-1)-2\*(i-1);

space=space+2;

printf("\n");

}

return 0;

}

PATTERN OF STARS

/\*Enter the number of lines for pyramid of stars

10

\*\*

\*\*\*\*

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

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

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

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

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

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

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

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

\*/

#include <stdio.h>

int main()

{

int i,j,line;

printf("Enter the number of lines for pyramid of stars\n");

scanf("%d",&line);

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

{

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

printf(" ");

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

printf("\*");

printf("\n");

}

return 0;

}

PASCAL’S TRIANGLE

/\*

Enter the number of rows

6

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

1 5 10 10 5 1

\*/

#include<stdio.h>

int fact(int num){

int f=1,i=1;

while(i<=num)

{

f=f\*i;

i++;

}

return f;

}

int main()

{

int i,j,line;

printf("Enter the number of rows\n");

scanf("%d",&line);

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

{

for(j=0;j<line-i-1;j++)

printf(" ");

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

printf("%d ",fact(i)/(fact(j)\*fact(i-j)));

printf("\n");

}

}

PATTERN PRINTING

/\*

Enter a number

4

1

2\*3

4\*5\*6

7\*8\*9\*10

7\*8\*9\*10

4\*5\*6

2\*3

1

\*/

#include<stdio.h>

int main()

{

int i,j,count=1,n;

printf("Enter a number\n");

scanf("%d",&n);

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

{

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

{

if(j<i)

printf("%d\*",count++);

else

printf("%d",count++);

}

printf("\n");

}

count=count-n;

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

{

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

{

if(j<i)

printf("%d\*",count++);

else

printf("%d",count++);

}

count=(count+1)-2\*i;

printf("\n");

}

return 0;

}

PATTERN PRINTING

/\*

Enter the value of n

4

1

2 2

3 3 3

4 4 4 4

\*/

#include <stdio.h>

int main()

{

int i,j,n;

printf("Enter the value of n\n");

scanf("%d",&n);

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

{

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

printf(" ");

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

printf("%d ",i);

printf("\n");

}

return 0;

}