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**MATRIC NUMBER: 18/ENG02/083**

**I.**/\*A program that counts from 100 to 1 varying the control variable in the steps of 3 and printing it squares for each count\*/

#include<stdio.h>

int main()

{

void countFrom100();

{

int count, square;

for(count = 100;count > 0; count--)

{

square = count\*count;

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

} }

return 0;

}

**II.**/\*A program to display 80 bottles but if it exceeds 59, the program exits the loop and end the program\*/

#include <stdio.h>

main()

{

int x;

for ( x = 1; x < 60; x++ ) {

if ( x == 60 )

break;

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

}

}

**III.** /\*A progarm to consider whether a number is a prime number or not\*/

#include <stdio.h>

int main() {

int x, i, num = 0;

printf("Enter any number you want: ");

scanf("%d", &x);

for (i = 2; i <= x / 2; ++i) {

if (x % i == 0) {

num = 1;

break;

}

}

if (x == 1) {

printf("1 is neither prime.");

}

else {

if (num == 0)

printf("%d is a prime number.", x);

else

printf("%d is not a prime number.", x);

}

return 0;

}

**IV.**/\*A PROGRAM TO FIND THE FACTORIAL OF A NUMBER\*/

long factorial(int);

int main()

{ int x;

printf("Enter a number to calculate its factorial\n");

scanf("%d", &x);

printf("%d! = %ld\n", x, factorial(x));

return 0;

}

long factorial(int x)

{ int c; long r = 1;

for (c = 1; c <= x; c++) r = r \* c;

return r; }

**V.**/\*A program that counts from 50 to 1000 varying the control variable in steps of 7\*/

#include <stdio.h>

main()

{

int x;

do {

printf("The value of x is %d\n", x);

x+=7;

} while ( x <= 1000 ); //end do while loop

}

**VI.**/\*A progarm to determine whether a character is a vowel or not\*/

#include <stdio.h>

int main() {

char x;

int lowercase, uppercase;

printf("Enter an alphabet: ");

scanf("%c", &x);

lowercase = (x == 'a' || x == 'e' || x == 'i' || x == 'o' || x == 'u');

uppercase = (x == 'A' || x == 'E' || x == 'I' || x == 'O' || x == 'U');

if (lowercase || uppercase)

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

else

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

return 0;

}

**VII.**/\*A Program to display the multiplication table of a number\*/

#include <stdio.h>

int main()

{

int x, i = 1;

printf(" Enter the Number:");

scanf("%d", &x);

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

while (i <= 10)

{

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

i++;

}

return 0;

}

**VIII.**

**IX.**/\*A program to input 8 integers and get the multiplication of all the 8 numbers\*/

#include<stdio.h>

main()

{

int x, y;

int z=1;

for( x=0; x<8; x++ )

{

printf("Input your number: ");

scanf("%d", &y);

if(y==0)

{

continue;

}

else

{

z \*=y;

}

}

printf("The multiplication of the numbers is %d", z);

return 0;

}

**X.**/\*A program that displays the new population of upcoming years\*/

#include<stdio.h>

int main()

{

int count=1,year\_num;

float Rate;

unsigned long CurrentYr;

unsigned long NextYr;

while (count<=1)

{

printf("Enter the initial population: ");

scanf("%d",&CurrentYr);

printf("Enter the annual population growth or rate: ");

scanf("%f",&Rate);

printf("Year Population\n");

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

if ((CurrentYr>0 && CurrentYr<1000000) && (Rate>0 && Rate<4))

{

NextYr = CurrentYr;

for(year\_num=0;year\_num<=25;year\_num++)

{

NextYr = Rate \* NextYr \* (1-NextYr/1000000);

printf("%4d%12d\n",year\_num,NextYr);

}

break;

}

else if ((CurrentYr <0 || CurrentYr > 1000000) || (Rate<0 || Rate>4))

{

printf("Invalid Input!");

printf("Enter the initial population: ");

scanf("%d",&CurrentYr);

printf("Enter the annual population growth or rate : ");

scanf("%f",&Rate);

if ((CurrentYr>0 && CurrentYr<1000000) && (Rate>0 && Rate<4))

{

NextYr = CurrentYr;

for(year\_num=0;year\_num<=25;year\_num++)

{

printf("%4d%12d\n",year\_num,NextYr);

NextYr = Rate \* NextYr \* (1-NextYr/1000000);

}

break;

}

}

return 0;

}

}