



# Lakshmi Narain College of Technology, Bhopal

Department of Electronics and Communication Engineering

Name: ADARSH KUMAR  
Class: EC V SEM

Enrollment No: 0103EC181006  
Date: 24 Oct. 2020

## Control Flow Statement

### Assignment-02

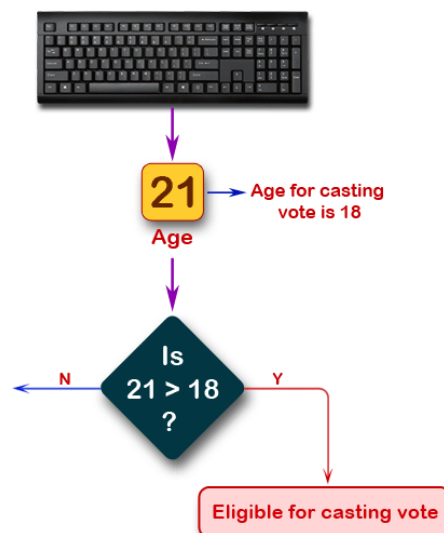
EC – 509

C C++ IT Training

Department: Training and placement Department

Faculty: Ram

1. Write a C program to read the age of a candidate and determine whether it is eligible for casting his/her own vote.





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Solution: -

```
#include<stdio.h>

int main (){
    int a;
    printf("Enter Your Age : ");
    scanf("%d",&a);
    if (a >= 18){
        printf("Congratulations !!! You are Elligible for Voting\n");
    }
    else{
        printf("You are Not Elligible for Voting\n");
    }
    return 0;
}
```

Output: -

A screenshot of a terminal window with a dark background. The title bar shows '1: bash'. The terminal content shows the compilation and execution of a C program. It prompts for age, and two test cases are shown: one with age 6 resulting in 'You are Not Elligible for Voting' and one with age 19 resulting in 'Congratulations !!! You are Elligible for Voting'. The status bar at the bottom is red and shows 'Ln 14, Col 2 Spaces: 4 UTF-8 LF C Go Live Mac'.



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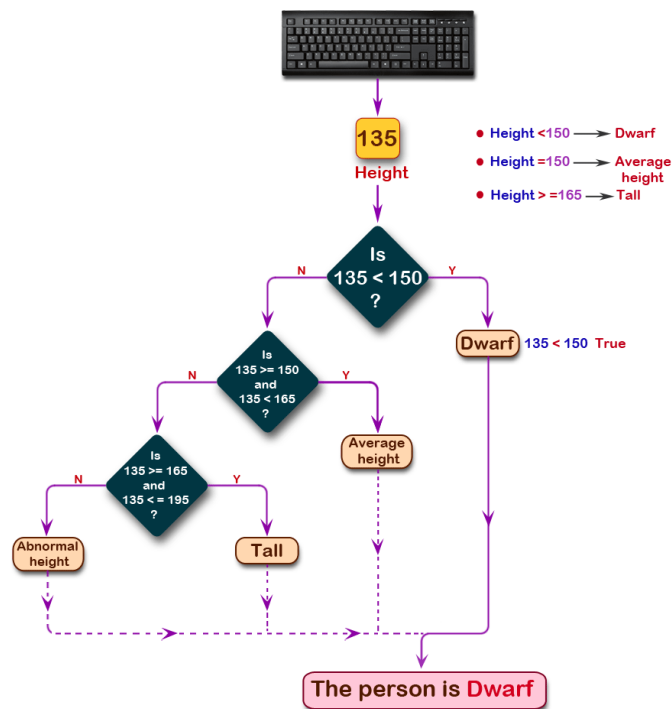
Name: ADARSH KUMAR

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2. Write a C program to accept the height of a person in centimeter and categorize the person according to their height.



Solution: -

```
#include<stdio.h>

int main (){
    int a;
    printf("Enter the height of the person (in centimeters) : ");
    scanf("%d",&a);
    if (a < 150){
        printf("The person is Dwarf.\n");
    }
    if (a >= 150 && a < 165){
        printf("The person is of Average Height\n");
    }
    if(a >= 165){
        printf("The person is Tall.\n");
    }
    return 0;
}
```



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Output: -

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
Adarshs-MacBook-Air:Assignment2 adarshkumar$ gcc height.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter the height of the person (in centimeters) : 145
The person is Dwarf.
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter the height of the person (in centimeters) : 151
The person is of Average Height
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter the height of the person (in centimeters) : 163
The person is of Average Height
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter the height of the person (in centimeters) : 165
The person is Tall.
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```

3. Write a C program to find the eligibility of admission for a professional course based on the following criteria:

Marks in Math's  $\geq 65$

Marks in Phy  $\geq 55$

Marks in Chem  $\geq 50$

Total in all three subjects  $\geq 180$

or

Total in Math and Physics  $\geq 140$

Solution: -



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```
#include<stdio.h>

int main (){
    int p,c,m;

    printf("Enter the marks obtained in Physics : ");
    scanf("%d",&p);
    printf("Enter the marks obtained in Chemistry : ");
    scanf("%d",&c);
    printf("Enter the marks obtained in Mathematics : ");
    scanf("%d",&m);
    printf("Total in All Three Subject : %d\n",p+c+m);
    printf("Total in Maths and Physics : %d\n",m+p);

    if ((m >= 65 && p >= 55 && c >= 50 && p+c+m >= 180) || (m + p >= 140 )){
        printf("\nThe candidate is eligible for Admission.\n");
    }
    else{
        printf("\nThe candidate is Not eligible for admission.\n");
    }

    return 0;
}
```

Output:-

```
PROBLEMS  OUTPUT  TERMINAL  DEBUG CONSOLE
1: bash
Adarshs-MacBook-Air:Assignment2 adarshkumar$ gcc admission.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter the marks obtained in Physics : 65
Enter the marks obtained in Chemistry : 51
Enter the marks obtained in Mathematics : 72
Total in All Three Subject : 188
Total in Maths and Physics : 137

The candidate is eligible for Admission.
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter the marks obtained in Physics : 32
Enter the marks obtained in Chemistry : 56
Enter the marks obtained in Mathematics : 34
Total in All Three Subject : 122
Total in Maths and Physics : 66

The candidate is Not eligible for admission.
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```



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4. Write a C program to read temperature in centigrade and display a suitable message according to temperature state below.

Temp < 0 then Freezing weather  
Temp 0-10 then Very Cold weather  
Temp 10-20 then Cold weather  
Temp 20-30 then Normal in Temp  
Temp 30-40 then Its Hot  
Temp >=40 then Its Very Hot.

Solution: -

```
#include<stdio.h>

int main (){
    int t;
    printf("Enter Temperature (in Centigrade) : ");
    scanf("%d",&t);
    if (t < 0)
        printf("\nFreezing Weather.\n");
    else if (t >= 0 && t < 10)
        printf("\nVery Cold Weather\n");
    else if (t >= 10 && t < 20)
        printf("\nCold weather\n");
    else if (t >= 20 && t < 30)
        printf("\nNormal in Temp\n");
    else if (t >= 30 && t < 40)
        printf("\nIts Hot\n");
    else if (t > 40)
        printf("\nIts Very Hot\n");
    return 0;
}
```

Output: -



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5. 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 taken from the keyboard and display the total amount to pay to the customer. The charge are as follow :

Unit	Charge/unit
upto 199	@1.20
200 and above but less than 400	@1.50
400 and above but less than 600	@1.80
600 and above	@2.00

If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/-

Input Customer ID :10001

Input the name of the customer :Ram

Input the unit consumed by the customer : 800

Electricity Bill

Customer IDNO :10001

Customer Name :Ram

unit Consumed :800

Amount Charges @Rs. 2.00 per unit : 1600.00

Surcharge Amount : 240.00

Net Amount Paid By the Customer : 1840.00



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Solution: -

```
#include<stdio.h>

int main(){
    int id, unit;
    char name[20];
    float rate = 0.0;

    printf("Enter Customer ID : ");
    scanf("%d",&id);
    printf("\nEnter the name of the customer : ");
    scanf("%s",name);
    fflush(stdin);
    printf("\nEnter the unit consumed by the customer : ");
    scanf("%d",&unit);

    if (unit <= 199)
        rate = 1.20;
    else if (unit >= 200 && unit < 400)
        rate = 1.50;
    else if (unit >= 400 && unit < 600)
        rate = 1.80;
    else if (unit >= 600)
        rate = 2.00;

    printf("\nElectricity Bill\n");
    printf("\nCustomer IDNO\t\t\t: %d\n",id);
    printf("\nCustomer Name\t\t\t: %s\n",name);
    printf("\nUnit Consumed\t\t\t: %d\n",unit);
    printf("\nAmount Charges @Rs. %.2f per unit : %.2f\n",rate,unit * rate);
    if ((unit * rate) >= 400){
        printf("Surcharge Amount\t\t\t: %.2f\n",(unit * rate) * (0.15));
    }
    if ((unit * rate) < 100){
        printf("\nNet Amount Paid By the Customer\t: 100\n");
    }
    else{
        printf("\nNet Amount Paid By the Customer\t: %.2f\n\n", (unit * rate) + ((unit * rate) * (0.15)));
    }
    return 0;
}
```





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Output:-

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
Adarshs-Air:Assignment2 adarshkumar$ gcc electricityBill.c
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter Customer ID : 1000110

Enter the name of the customer : RAM

Enter the unit consumed by the customer : 800

Electricity Bill
Customer IDNO          : 1000110
Customer Name          : RAM
Unit Consumed          : 800
Amount Charges @Rs. 2.00 per unit : 1600.00
Surcharge Amount       : 240.00
Net Amount Paid By the Customer : 1840.00
Adarshs-Air:Assignment2 adarshkumar$
```

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
To update your account to use zsh, please run 'chsh -s /bin/zsh'.
For more details, please visit https://support.apple.com/kb/HT208050.
Adarshs-MacBook-Air:C adarshkumar$ cd Assignment2
Adarshs-MacBook-Air:Assignment2 adarshkumar$ clang electricityBill.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter Customer ID : 345003

Enter the name of the customer : Adarsh

Enter the unit consumed by the customer : 25

Electricity Bill
Customer IDNO          : 345003
Customer Name          : Adarsh
Unit Consumed          : 25
Amount Charges @Rs. 1.20 per unit : 30.00
Net Amount Paid By the Customer : 100
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```

6. Write a program in C which is a Menu-Driven Program to compute the area of the various geometrical shape.

Sample Output:

```
Input 1 for area of circle
Input 2 for area of rectangle
Input 3 for area of triangle
Input your choice : 1
Input radius of the circle : 5
The area is : 78.500000
```



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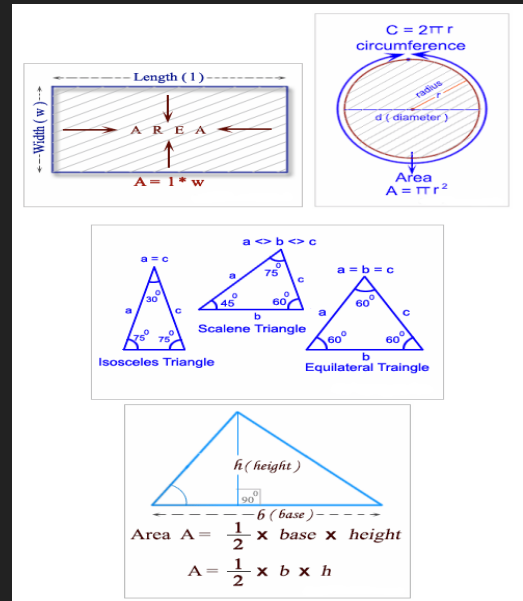
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Solution: -

```
#include<stdio.h>

int main (){
    short ch;
    int a,b;
    printf("Input 1 for area of Circle");
    printf("\nInput 2 for area of rectangle");
    printf("\nInput 3 for area of triangle");
    printf("\nEnter Your Choice : ");
    scanf("%hi",&ch);
    switch (ch)
    {
        case 1:
            printf("Enter Radius of the Circle : ");
            scanf("%d",&a);
            printf("\nThe Area is : %.2f\n",(3.14 * a * a));
            break;
        case 2:
            printf("Enter Length of Rectangle : ");
            scanf("%d",&a);
            printf("Enter Breadth of Rectangle : ");
            scanf("%d",&b);
            printf("\nThe Area is : %d\n",a * b);
            break;
        case 3:
            printf("Enter Base of Triangle : ");
            scanf("%d",&a);
            printf("Enter Height of Triangle : ");
            scanf("%d",&b);
            printf("\nThe Area is : %.2f\n",(0.5 * a * b));
            break;
        default:
            printf("\nInvalid Input , Try Again !!!\n");
            break;
    }
    return 0;
}
```





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Output: -

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
Adarshs-MacBook-Air:Assignment2 adarshkumar$ gcc geometricArea.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Input 1 for area of Circle
Input 2 for area of rectangle
Input 3 for area of triangle
Enter Your Choice : 1
Enter Radius of the Circle : 5

The Area is : 78.50
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Input 1 for area of Circle
Input 2 for area of rectangle
Input 3 for area of triangle
Enter Your Choice : 3
Enter Base of Triangle : 235
Enter Height of Triangle : 637

The Area is : 74847.50
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```

7. Write a C program that read 5 numbers and counts the number of positive numbers and print the average of all positive values.

Solution: -

```
#include<stdio.h>

int main (){
    int n;
    short i,count = 1, sum = 0;
    printf("Enter number of terms : ");
    scanf("%d",&n);
    printf("\nThe Even Numbers are : ");
    for (i = 1; count <= n;i++)
    {
        if (i % 2 == 0){
            printf("%d ",i);
            sum += i;
            count++;
        }
    }
    printf("\nSum of Even Natural Numbers upto %d terms = %d\n",count - 1,sum);
    return 0;
}
```



Number of terms : 5

The even numbers are  
2, 4, 6, 8, 10

The Sum of even Natural  
Number upto 5 terms  
 $2 + 4 + 6 + 8 + 10 = 30$



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Output:-

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
Adarshs-MacBook-Air:Assignment2 adarshkumar$ gcc evenNatural.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter number of terms : 5

The Even Numbers are : 2 4 6 8 10
Sum of Even Natural Numbers upto 5 terms = 30
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter number of terms : 6

The Even Numbers are : 2 4 6 8 10 12
Sum of Even Natural Numbers upto 6 terms = 42
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter number of terms : 7

The Even Numbers are : 2 4 6 8 10 12 14
Sum of Even Natural Numbers upto 7 terms = 56
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```

8. Write a C program to check whether a given number is an Armstrong number or not.

Solution: -

```
#include<stdio.h>
#include<math.h>

int main () {
    int n,sum = 0,real,rem,p = 0;
    printf("Enter a Number : ");
    scanf("%d",&n);

    real = n;
    while (n != 0){
        ++p;
        n = n / 10;
    }
    n = real;
    do{
        rem = n % 10;
        sum += pow(rem , p);
        n = n / 10;
    } while (n != 0);
    if (sum == real){
        printf("\n%d is an Armstrong number.\n",real);
    }
    else{
        printf("\n%d is Not an Armstrong number.\n",real);
    }
    return 0;
}
```

Armstrong Number :

Number = 153

$$1^3 + 5^3 + 3^3$$
$$1 + 125 + 27 = 153$$

Sum = Original Number  
153 is Armstrong Number



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Output: -

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
Adarshs-MacBook-Air:Assignment2 adarshkumar$ gcc Armstrong.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a Number : 153

153 is an Armstrong number.
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a Number : 370

370 is an Armstrong number.
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a Number : 371

371 is an Armstrong number.
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a Number : 4513

4513 is Not an Armstrong number.
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a Number : 155

155 is Not an Armstrong number.
Adarshs-MacBook-Air:Assignment2 adarshkumar$
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```

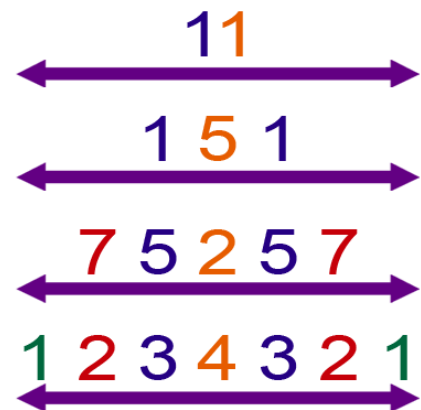
9. Write a program in C to check whether a number is a palindrome or not.

Solution: -

```
#include<stdio.h>
int main(){
    int n,rev = 0, r, num;
    printf("Enter a Number : ");
    scanf("%d",&n);
    num = n;
    while (n != 0)
    {
        r = n % 10;
        rev = rev * 10 + r;
        n = n / 10;
    }
    if (num == rev){
        printf("%d is a Palindrome Number\n",num);
    }
    else{
        printf("%d is Not a Palindrome Number. \n",num);
    }
    return 0;
}
```

## Palindrome Numbers

Palindrome numbers remain the same whether written forwards or backwards





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Output: -

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
1: bash
Adarshs-MacBook-Air:~$ clang palindrome.c
Adarshs-MacBook-Air:~$ ./a.out
Enter a Number : 11
11 is a Palindrome Number
Adarshs-MacBook-Air:~$ ./a.out
Enter a Number : 151
151 is a Palindrome Number
Adarshs-MacBook-Air:~$ ./a.out
Enter a Number : 75257
75257 is a Palindrome Number
Adarshs-MacBook-Air:~$ ./a.out
Enter a Number : 2146472
2146472 is Not a Palindrome Number.
Adarshs-MacBook-Air:~$
```

10. Write a program in C to convert a decimal number into binary without using an array.

Solution: -

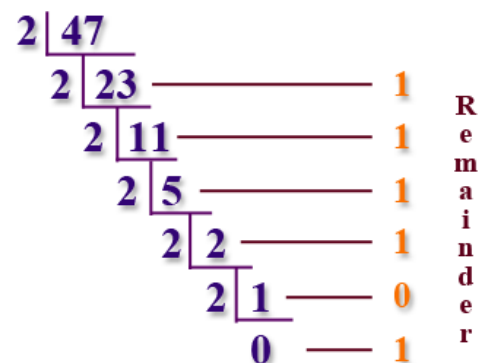
```
#include<stdio.h>

int main (){
    int n,num[10],i;
    printf("Enter a number to convert : ");
    scanf("%d",&n);
    printf("\nThe Binary of %d is ",n);

    for (i = 0; n > 0; i++){
        num[i] = n % 2;
        n = n / 2;
    }

    for ( i = i - 1; i >= 0 ; i--){
        printf("%d",num[i]);
    }
    printf("\n");
    return 0;
}
```

## Decimal to Binary



$$(47)_{10} = (101111)_2$$



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Output: -

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
Adarshs-MacBook-Air:Assignment2 adarshkumar$ clang decimalToBinary.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a number to convert : 25

The Binary of 25 is 11001
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a number to convert : 35

The Binary of 35 is 100011
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a number to convert : 45

The Binary of 45 is 101101
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a number to convert : 55

The Binary of 55 is 110111
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Enter a number to convert : 67

The Binary of 67 is 1000011
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```

11. Write a C program to find HCF (Highest Common Factor) of two numbers.

Solution: -

```
#include<stdio.h>

int main (){
    int x,y,hcf = 1,i;
    printf("Input 1st number for HCF: ");
    scanf("%d",&x);
    printf("Input 2nd number for HCF: ");
    scanf("%d",&y);
    for (i = 1; i <= x || i <= y ; i++){
        if (x % i == 0 && y % i == 0){
            hcf = i;
        }
    }
    printf("\nHCF of %d and %d is %d\n",x,y,hcf);
    return 0;
}
```

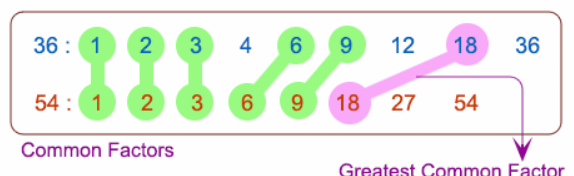
Determine the HCF of two numbers

List of Factors of 36 :

1 x 36, 2 x 18, 3 x 12, 4 x 9, 6 x 6

List of Factors of 54 :

1 x 54, 2 x 27, 3 x 18, 6 x 9



Output: -



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```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
Adarshs-MacBook-Air:Assignment2 adarshkumar$ clang hcf.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Input 1st number for HCF: 24
Input 2nd number for HCF: 28

HCF of 24 and 28 is 4
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Input 1st number for HCF: 35
Input 2nd number for HCF: 135

HCF of 35 and 135 is 5
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Input 1st number for HCF: 56
Input 2nd number for HCF: 78

HCF of 56 and 78 is 2
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```

12. Write a program in C to find LCM of any two numbers using HCF.

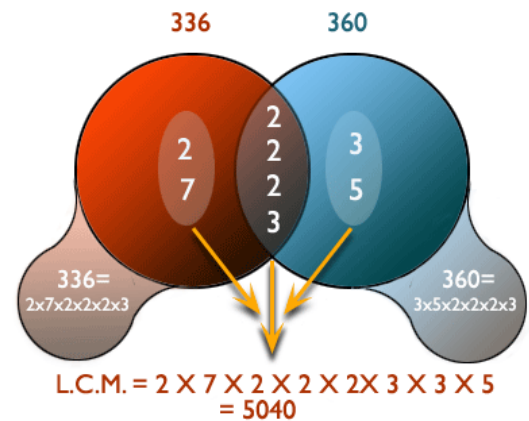
Solution: -

```
#include<stdio.h>

int main (){
    int x,y,lcm = 1,i,max;
    printf("Input 1st number for LCM : ");
    scanf("%d",&x);
    printf("Input 2nd number for LCM : ");
    scanf("%d",&y);

    if (x > y)
        max = x;
    else
        max = y;
    while (1){
        if (max % x == 0 && max % y == 0){
            printf("\nThe LCM of %d and %d is : %d\n",x,y,max);
            break;
        }
        else{
            max++;
        }
    }
    return 0;
}
```

Determine the LCM of two numbers using HCF



Output: -





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```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
Adarshs-MacBook-Air:Assignment2 adarshkumar$ clang lcm.c
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Input 1st number for LCM : 15
Input 2nd number for LCM : 20

The LCM of 15 and 20 is : 60
Adarshs-MacBook-Air:Assignment2 adarshkumar$ ./a.out
Input 1st number for LCM : 3463
Input 2nd number for LCM : 2563

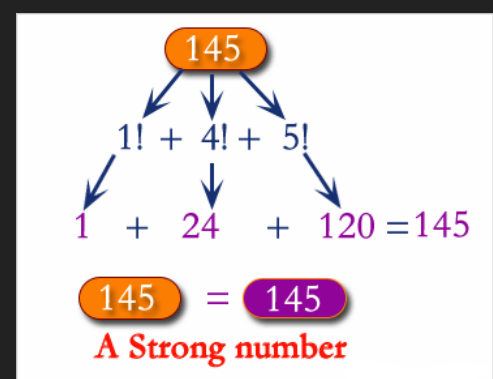
The LCM of 3463 and 2563 is : 8875669
Adarshs-MacBook-Air:Assignment2 adarshkumar$
```

13. Write a C program to check whether a number is a Strong Number or not.

Solution: -

```
#include<stdio.h>

int main (){
    int n,rem,sum = 0,fact = 1,real;
    printf("Check whether a number is Strong Number or not : \n");
    printf(" ----- \n");
    printf("\nInput a number to check whether it is Strong number : ");
    scanf("%d",&n);
    real = n;
    while (n > 0)
    {
        rem = n % 10;
        for (; rem > 0 ; rem --){
            fact *= rem;
        }
        sum += fact;
        fact = 1;
        n = n / 10;
    }
    if (sum == real)
        printf("\n%d is a Strong number.\n",real);
    else
        printf("\n%d is Not a Strong number.\n",real);
    return 0;
}
```





# Lakshmi Narain College of Technology, Bhopal

Department of Electronics and Communication Engineering

Name: ADARSH KUMAR  
Class: EC V SEM

Enrollment No: 0103EC181006  
Date: 24 Oct. 2020

Output: -

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: bash
The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
Adarshs-Air:C adarshkumar$ cd Assignment2
Adarshs-Air:Assignment2 adarshkumar$ clang strong.c
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Check whether a number is Strong Number or not :

Input a number to check whether it is Strong number : 145

145 is a Strong number.
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Check whether a number is Strong Number or not :

Input a number to check whether it is Strong number : 15

15 is Not a Strong number.
Adarshs-Air:Assignment2 adarshkumar$
```

14. Write a program in C to Check Whether a Number can be Express as Sum of Two Prime Numbers.

Solution: -



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```
#include <stdio.h>
int checkPrime(int n);
int main() {
    int n, i, flag = 0;
    printf("Enter a positive integer: ");
    scanf("%d", &n);

    for (i = 2; i <= n / 2; ++i) {
        // condition for i to be a prime number
        if (checkPrime(i) == 1) {
            // condition for n-i to be a prime number
            if (checkPrime(n - i) == 1) {
                printf("%d can be Written as : %d + %d\n", n, i, n - i);
                flag = 1;
            }
        }
    }

    if (flag == 0)
        printf("%d cannot be expressed as the sum of two prime numbers.\n", n);

    return 0;
}

// function to check prime number
int checkPrime(int n) {
    int i, isPrime = 1;
    for (i = 2; i <= n / 2; ++i) {
        if (n % i == 0) {
            isPrime = 0;
            break;
        }
    }

    return isPrime;
}
```

16 = 1 + 15 → Both are not prime  
16 = 2 + 14 → 2 is prime but 14 is not  
16 = 3 + 13 → Both are prime  
16 = 4 + 12 → Both are not prime  
16 = 5 + 11 → Both are prime  
16 = 6 + 10 → Both are not prime  
16 = 7 + 9 → 7 is prime but 9 is not

Output:-

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
1: bash
Adarshs-Air:Assignment2 adarshkumar$ clang sumPrime.c
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter a positive integer: 16
16 can be Written as : 3 + 13
16 can be Written as : 5 + 11
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter a positive integer: 17
17 cannot be expressed as the sum of two prime numbers.
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter a positive integer: 18
18 can be Written as : 5 + 13
18 can be Written as : 7 + 11
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter a positive integer: 19
19 can be Written as : 2 + 17
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter a positive integer: 6
6 can be Written as : 3 + 3
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter a positive integer: 7
7 can be Written as : 2 + 5
Adarshs-Air:Assignment2 adarshkumar$
```



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15. Write a c program to print following pattern.

Solution: -

```
#include<stdio.h>

int main (){
    int n,i,j,space;
    printf("Enter Nuumber of Rows : ");
    scanf("%d",&n);

    for(i = n; i >= 0; i--){
        for(j = 0; j <=i; j++){
            printf("* ");
        }
        space = (2 * n) - (2 * i);
        for(j = 1; j <= space; j++){
            printf(" ");
        }
        for(j = 0; j <= i; j++){
            printf("* ");
        }
        printf("\n");
    }

    return 0;
}
```

```
*****
***  ***
**   **
*    *
*
```

Output:-

```
Adarshs-Air:Assignment2 adarshkumar$ clang halfButterfly.c
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter Number of Rows : 5
*****
***  ***
**   **
*    *
*
Adarshs-Air:Assignment2 adarshkumar$ ./a.out
Enter Number of Rows : 6
*****
***  ***
**   **
*    *
*
Adarshs-Air:Assignment2 adarshkumar$
```



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16. Write a c program to print following pattern.

Solution: -

```
#include<stdio.h>
int main (){

    int r,c;
    for (r = 5; r >= 1; r--){
        for (c = 5; c > r; c--){
            printf(" ");
        }
        for (c = 1; c <= r ; c++){
            printf("%d", c);
        }
        for(c=r-1; c>=1; c--){
            printf("%d", c);
        }

        for (c = 5; c > r; c--){
            printf(" ");
        }
        printf("\n");
    }
    return 0;
}
```

```
123454321
 1234321
   12321
    121
     1
```

Output: -

Student Sign: \_\_\_\_\_

Teacher's Sign: \_\_\_\_\_