2023

PROBLEM SOLVING

CYBER TRON

C-PROGRAMMING

(PROBLEM SOLVING)

T.I.M. HAMIM

Index:

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
   int x=12, y=8;
   y+=x;
   printf("\n 1. --x = %d", --x);
   printf("\n 2. x++ = %d", x++);
   printf("\n 1. y-- = %d", y--);
   printf("\n 1. x++ = %d", x++);
   printf("\n 1. y-- = %d", y--);
   printf("\n 1. ++y = %d", ++y);
   return 0;
}
```

Output:

```
 1. --x = 11
 2. x++ = 11
 1. y-- = 20
 1. x++ = 12
 1. y-- = 19
 1. ++y = 19
```

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
  int p = 3, q = 7, r = 9;
  r = p*3;
  printf("1. p = %d\n",p*=3);
  q = ++p - r--;
  printf("2. p = %d q = %d\n",p++, --q);
  r = (--q) + (p++);
  printf("3. %d - %d\n",q--, ++r);
  return 0;
}
```

Output:

1. p = 9
2. p = 10 q = 0
3. -1 - 11

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
   int a=8, b=12;
   b+=a;
   printf("\n 1. --A = %d", --a);
   printf("\n 2. A++ = %d", a++);
   printf("\n 1. B-- = %d", b--);
   printf("\n 1. B++ = %d", b++);
   printf("\n 1. ++A = %d", ++a);
   printf("\n 1. ++B = %d", ++b);
   return 0;
}
```

Output:

1. --A = 7
2. A++ = 7
1. B-- = 20
1. B++ = 19
1. ++A = 9
1. ++B = 21

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
    int x = 15, y = 6, z = 10;
    printf("\n1. X = %d\n", x*=5);
    y+= (--x);
    printf("\n2. X = %d Y = %d\n", x, y);
    z = ((y--) - (x++));
    printf("\n3. Z = %d\n", z--);
    return 0;
}
```

Output:

1. X = 75

2. X = 74 Y = 80

3. Z = 6

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
  int x = 10, y = 4;
  while (x > 0)
  {
    if (x == y)
    {
      printf("\nThe value of x and y is equal");
      printf("\n %d \t %d", x, y);
      break;
    }
    else
    {
      printf("\n %d \t %d", x, y);
    }
    x--;
    y++;
  }
  return 0;
}
```

Output:

```
 10      4
 9       5
 8       6
The value of x and y is equal
 7       7
```

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
  int x = 5, y = 3, i;
  for (i = 1; i <= 4; i++)
  {
    if (x == y)
    {

      continue;
    }
    else
    {
      ++x;
      printf("The value of y is %d\n ", y);
    }
    ++y;
  }
  printf("The value of x is %d\n ", x);
  return 0;
}
```

Output:

```
The value of y is 3
 The value of y is 4
 The value of y is 5
 The value of y is 6
 The value of x is 9
```

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
  int x = 5, y = 3;
  while (x >= 0)
  {
    x--;
    y++;
    if (x == y)
      continue;
    else
      printf("The value of x and y :%d %d \n", x, y);
  }
  return 0;
}
```

Output:

```
The value of x and y :3 5
The value of x and y :2 6
The value of x and y :1 7
The value of x and y :0 8
The value of x and y :-1 9
```

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
  int i, j = 0;
  for (i = 0; i < 10; i++)
  {
    if (i >= 9)
      break;
    else
      j += i;

    printf("The value of j is %d \n", j);
    i++;
  }
  return 0;
}
```

Output:

The value of j is 0
The value of j is 2
The value of j is 6
The value of j is 12
The value of j is 20

- **What will be the output of the following program?**

```
#include <stdio.h>
  int main(){
  char *ptr="What's the updated News";
  printf("\n 1. %s", ptr);
  ptr=ptr+2;
  printf("\n 2. %s", ptr);
  printf("\n 3. %c", *ptr);
  printf("\n 4. %c",++ptr);
  printf("\n 5. %s", *ptr);
  return 0;
 }
```

Output:

1. What's the updated News
2. at's the updated News
3. a
4. g

- **What will be the output of the following program?**

```
#include <stdio.h>
int res(int i, int *j);

int main()
{
   int a = 8, b = 3, c = 0;
   printf("\n 1. A=%d B=%d", a, b);
   c = res(a, &b);
   printf("\n 4. A=%d B=%d", a, b);
   printf("\n 5. C=%d", ++c);
   return 0;
}

int res(int i, int *j)
{
   printf("\n 4. I=%d J=%d", i, *j);
   i--;
   (*j)++;
   printf("\n 3. I=%d J=%d", i, *j);
   return i - *j;
}
```

Output:

1. A=8 B=3
4. I=8 J=3
3. I=7 J=4
4. A=8 B=4
5. C=4

- **What will be the output of the following program?**

```
#include <stdio.h>
int main()
{
   char *ptr ="I Love C Programming";
   printf("\n 1. %s", ptr);
   ptr = ptr + 2;
   printf("\n 2. %s", ptr);
   printf("\n 3. %c", *ptr);
   printf("\n 4. %c", ++ptr);
   printf("\n 5. %s", *ptr);
   return 0;
}
```

Output:

1. I Love C Programming
2. Love C Programming
3. L
4. g

- **What will be the output of the following program?**

```
#include <stdio.h>
int ret(int *a, int b);
int main()
{
   int x = 5, y = 4, z = 0;
   printf("\n 1. X=%d Y=%d", x, y);
   z = ret(&x, y);
   printf("\n 4. X=%d Y=%d", x, y);
   printf("\n 5. Z=%d", --z);
   return 0;
}
int ret(int *a, int b)
{
   printf("\n 2. A=%d B=%d", *a, b);
   (*a)--;
   b++;
   printf("\n 3. A=%d B=%d", *a, b);
   return *a + b;
}
```

Output:

1. X=5 Y=4
2. A=5 B=4
3. A=4 B=5
4. X=4 Y=4
5. Z=8

- **Make a program that can show a number is prime or not.**

```
#include <stdio.h>
int main()
{
 // check prime number.
 int k = 0, i, j = 1, c;
 printf("Enter how many numbers do you want to
check: ");
 scanf("%d", &c);
 int a[c];
 printf("Enter %d numbers:\n",c);
 for (j = 0; j < c; j++)
 {
  scanf("%d", &a[j]);
 }
 for (j = 0; j < c; j++)
 {
  for (i = 2; i < a[j]; i++)
  {
   if ((a[j] % i == 0))
   {
    k++;
    break;
   }
  }
  if (a[j] > 1 && k == 0)
  {
   printf("%d is prime number\n", a[j]);
  }
```

```
else
   printf("%d is not prime number\n", a[j]);
  k = 0;
 }

 return 0;
}
```

or,

```
#include <stdio.h>
int main()
{
  // check prime number.
  int k = 1, i, j = 1, c;
  printf("Enter how many numbers do you want
to check: ");
  scanf("%d", &c);
  int a[c];
  printf("Enter %d numbers:\n",c);
  for (j = 0; j < c; j++)
  {
    scanf("%d", &a[j]);
  }
  for (j = 0; j < c; j++)
  {
    for (i = 2; i*i <= a[j]; i++)
    {
      if ((a[j] % i == 0))
      {
        k=0;
      }
    }
```

```
    if (a[j] > 1 && k )
    {
      printf("%d is prime number\n", a[j]);
    }
    else
      printf("%d is not prime number\n", a[j]);
    k = 1;
  }

  return 0;
}
```

- **Make a program that can show prime numbers from 2 to 100.**

```
#include <stdio.h>
int main()
{
  // prime number from 2 to 100.
  int a[99], j, i, n, k = 0;

  for (i = 0, j = 2; i < 99; i++, j++)
  {
    a[i] = j;
    printf("a[%d]=%d\n", i, a[i]);
  }
  printf("\nPrime numbers from 2 to 100 :\n");
  for (i = 0; i < 99; i++)
  {
    for (n = 2; n < a[i]; n++)
    {
      if (a[i] != n && (a[i] % n == 0))
      {
        k++;
        break;
      }
    }
    if (a[i] >1 && k == 0)
    {
      printf("%d\n", a[i]);
    }
    k = 0;
  }
  return 0;
}
```

or,

```
#include <stdio.h>
int main()
{
  // print prime number from 2 to 100.
  int a = 100, b = 2, k = 0, i, j;

  for (i = 2; i <= 100; i++)
  {
    for (j = 2; j < i; j++)
    {
      if (i != j && (i % j == 0))
        {
          k++;
          break;
        }
    }
    if (k == 0)
     {
        printf("%d\n", i);
     }
     k = 0;
  }
  return 0;
}
```

- **Write a program that will show given bellow:**

  Enter how many number you want to see after decimal : 5
  Emter your number :43.67
  Your number is : 43.67000

```
#include <stdio.h>
int main()
{
   int p,i,j;
   double k=1;
   float t,r;
   printf("Enter how many number you want to see
after decimal : ");
   scanf("%d",&p);
   printf("Emter your number :");
   scanf("%f",&t);
   for(i=1;i<=p;i++)
   {
      k=k*10;
   }
   r=t*k;
   j=r;
   t=j/k;
   int u=j/k;
   int q=j-(u*k);
   char c='.';
   printf("Your number is : %d%c%d",u,c,q);
}
```

- **Write a program that will show given bellow:**

  Enter the last number: 5
  1
  11
  111
  1111
  11111
  Sum is 12345

```
#include <stdio.h>
int main()
{
   int num, i,k=1,p=0,sum=0,t;
   printf("Enter the last number: ");
   scanf("%d", &num);
   for (i=1 ; i <= num; i++)
   {
      k=k*10;
      t=k/10;
      p=p+t;
      sum=sum+p;
      printf("%d\n",p);
   }
   printf("Sum is %d\n",sum);
   return 0;
}
```

- **Write a program that will show given bellow:**

  Enter the last number: 5
  1 11 111 1111 11111
  Sum is 12345

```
#include <stdio.h>
int main()
{
   int num, i,k=1,p=0,sum=0,t;
   printf("Enter the last number: ");
   scanf("%d", &num);
   for (i=1 ; i <= num; i++)
   {
      k=k*10;
      t=k/10;
      p=p+t;
      sum=sum+p;
      printf("%d ",p);
   }
   printf("\nSum is %d\n",sum);
   return 0;
}
```

- **Write a program that will show given bellow:**

  Enter the last number: 5
  1 11 111 1111 11111
  Sum is 12345

```
#include <stdio.h>
int main()
{
   int num, i,k=1,p=0,sum=0,t;
   printf("Enter the last number: ");
   scanf("%d", &num);
   for (i=1 ; i <= num; i++)
   {
      k=k*10;
      t=k/10;
      p=p+t;
      sum=sum+p;
      printf("%d ",p);
   }
   printf("\nSum is %d\n",sum);
   return 0;
}
```

- **Write a program that will show given bellow:**

  Enter the number of terms : 5
  Enter the pattern number: 3
  3
  33
  333
  3333
  33333
  Sum is 37035

```
#include <stdio.h>
int main()
{
   int num, i,k,p=0,sum=0,t;
   printf("Enter the number of terms : ");
   scanf("%d", &num);
   printf("Enter the pattern number: ");
   scanf("%d", &k);
   for (i=1 ; i <= num; i++)
   {
      k=k*10;
      t=k/10;
      p=p+t;
      sum=sum+p;
      printf("%d\n",p);
   }
   printf("Sum is %d\n",sum);
   return 0;
}
```

- **Write a program that will show given bellow:**

  Enter the number of terms : 5
  Enter the pattern number: 2
  2 22 222 2222 22222
  Sum is 24690

```
#include <stdio.h>
int main()
{
   int num, i,k,p=0,sum=0,t;
   printf("Enter the number of terms : ");
   scanf("%d", &num);
   printf("Enter the pattern number: ");
   scanf("%d", &k);
   for (i=1 ; i <= num; i++)
   {
      k=k*10;
      t=k/10;
      p=p+t;
      sum=sum+p;
      printf("%d ",p);
   }
   printf("\nSum is %d\n",sum);
   return 0;
}
```

- **Write a program that will show given bellow:**

  Enter the number of terms : 5
  Enter the pattern number : 1
  1 + 11 + 111 + 1111 + 11111 = 12345

```
#include <stdio.h>
int main()
{
   int num, i,k,p=0,sum=0,t;
   printf("Enter the number of terms : ");
   scanf("%d", &num);
   printf("Enter the pattern number : ");
   scanf("%d", &k);
   for (i=1 ; i <= num; i++)
   {
      k=k*10;
      t=k/10;
      p=p+t;
      sum=sum+p;
      printf("%d ",p);
      if(i<num){
      printf("+ ");
      }
   }
   printf("= %d\n",sum);
   return 0;
}
```

- **Write a program that will show given bellow:**

1	**2**	**3**	**4**	**5**	**6**	**7**
8	**9**	**10**	**11**	**12**	**13**	**14**
...	**...**	**...**	**...**	**...**	**...**	**...**
...	**...**	**...**	**...**	**...**	**...**	**...**
988	**989**	**990**	**991**	**992**	**993**	**994**
995	**996**	**997**	**998**	**999**	**1000**	**1001**

```
#include<stdio.h>
int main()
{
   int i,j,n;
   for(i=1;i<=1001;i++){
     printf("%4d",i);
     for(j=1;j<=7;j++){
       printf(" ");
     }
     if(i % 7==0){
       printf("\n");
     }
   }
   return 0;
}
```

- **Write a program that will show given bellow:**

  Enter decimal number : 38

  Binary form = 100110

```
#include <stdio.h>
int main()
{
 // Converting Decimal to Binary
 int a,b,rem,k,i,s=0;
 printf("Enter decimal number : ");
 scanf("%d",&a);
 for(k=1;a>0;k=k*10){
  rem=a%2;
  a=a/2;
   s=s+rem*k;
 }
 printf("\nBinary form = %d",s);
 return 0;
}
```

- **Write a program that will show given bellow:**

  Enter two numaers:
  2.2
  2.4
  a = 5

```
#include <stdio.h>
int main()
{
  int a;
  double f,g,c, d, e;
  printf("Enter two numaers:\n");
  scanf("%lf%lf", &c, &d);
  e = c + d;
  a = e;
  f = a;
  g = e - f;
  if (g >= 0.5)
  {
    printf("a = %d\n", a + 1);
  }
  else
  {
    printf("a = %d\n", a);
  }
  return 0;
}
```

- **Write a program that will show given bellow:**

  54321
  1
  2
  3
  4
  5

```
#include <stdio.h>
int main()
{
   int a,c,s=0,t,k=10,d,i,p=0,h;
   scanf("%d",&h);
   a=h;
   for(a;a>0;a=a/10){
     p++;
   }
   a=h;
   int m[p];
   for(a,i=0;a>0;a=a/10,i++){
     c=a/k;
     d=c*k;
     t=a-d;
     m[i]=t;
   }
   for(i=0;i<p;i++){
     printf("%d\n",m[i]);
   }
   return 0;
}
```

- **Write a program that will show given bellow:**

  Enter your ID number:221-15-5369
  2
  2
  1
  1
  5
  5
  3
  6
  9

```
#include <stdio.h>
#include <string.h>
int main()
{
  char arr[50];

  printf("Enter your ID number:");
  gets(arr);
  int ar1[50];
  int i, j;
  for (i = 0, j = 0; i < strlen(arr); i++)
  {
    if (arr[i] >= '0' && arr[i] <= '9')
    {
      ar1[j] = arr[i] - 48;
      j++;
    }
```

```
 }
  for (i = 0; i < j; i++)
  {
    printf("%d\n", ar1[i]);
  }
  return 0;
}
```

- **Write a program that will show given bellow:**

  Enter a character: a

  Integer form = 97
  Binary form = 1100001

```
#include <stdio.h>
int main()
{
  // Converting character to Binary
  int a,c,k,s=0;
  char cr;
  printf("Enter a character: ");
  scanf("%c",&cr);
  a=cr;
  printf("\nInteger form = %d",a);
  for(k=1;a>0;k=k*10){
    c=a%2;
    a=a/2;
     s=s+c*k;
  }
  printf("\nBinary form = %d",s);
  return 0;
}
```

or,

```
#include <stdio.h>
int main()
{
  // Converting character to Binary
  int a,j,rem,k,s=1,inc=0,n,t;
  char cr;
  printf("Enter a character: ");
  scanf("%c",&cr);
  a=cr;
  printf("\nInteger form = %d\n",a);
  for(a=cr;a>0;a=a/2){
    rem=a%2;
    s=s*10+rem;
    inc++;
  }
  n=(8-inc);
  for(t=1;t<=n;t++){
   printf("0");
  }
  for(j=1,a=s;j<=inc;j++,a=a/10){
    rem=a%10;
    if(rem==0){
        printf("0");
    }
    else if(rem==1){
        printf("1");
    }
  }
  return 0;
}
```

- **Write a program that will show given bellow:**

  Enter your messege : I am Hamim.

  Your Encrypted code is :
01001001001000000110000101101101001000000100100001100001011011010110100101101101001011110

```
// converting text form to binary form.
#include <stdio.h>
#include<string.h>
int main()
{
 char c[1000000];
 printf("Enter your messege : ");
 gets(c);
 int i,j,num,a,b,rem,k,s=0,inc=0,n=0,t;
 printf("\nYour Encrypted code is : ");
 for(i=0;c[i]!='\0';i++){
 num=c[i];
 a=num;
 for(k=1;a>0;k=k*10){
 rem=a%2;
 a=a/2;
 inc++;
 }
 a=num;
 n=(8-inc);
 for(t=1;t<=n;t++){
 printf("0");
 }
```

```
   for(k=1;a>0;k=k*10){
    rem=a%2;
    a=a/2;
    s=s+rem*k;
  }
  printf("%d",s);
  s=0;
  inc=0;
  n=0;
 }
 printf("\n\n");
 return 0;
}
```

or,

```
// converting text form to binary form.
#include <stdio.h>
#include<string.h>
int main()
{
 char c[1000000];
 printf("Enter your messege : ");
 gets(c);
 int i,j,num,a,b,rem,k,s=0,inc=0,n=0,t;
 printf("\nYour Encrypted code is : ");
 for(i=0;c[i]!='\0';i++){
 num=c[i];
 a=num;
```

```
 for(a=num;a>0;a=a/2){
    rem=a%2;
    s=s*10+rem;
    inc++;
  }
  n=(8-inc);
  for(t=1;t<=n;t++){
   printf("0");
  }
  for(j=1,a=s;j<=inc;j++,a=a/10){
    rem=a%10;
    if(rem==0){
        printf("0");
    }
    else if(rem==1){
        printf("1");
    }
  }
  s=0;
  inc=0;
 }
 printf("\n\n");
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter your messege : I am Hamim
Enter bit number : 9

Your Encrypted code is :
001001001000100000001100001001101101000100000000100100000011000010011011010011010010011011101

```
// converting text form to binary form.
#include <stdio.h>
#include <string.h>
int main()
{
  char c[1000000];
  printf("Enter your messege : ");
  gets(c);
  int i, num, a, b, rem, k, s = 0, inc = 0, n = 0, t, bit;
  printf("Enter bit number : ");
  scanf("%d", &bit); // bit = 8
  while (bit < 8)
  {
    printf("Bit number must be greater or equal
than 8.\n");
    printf("Enter bit number again : ");
    scanf("%d", &bit);
  }
  printf("\nYour Encrypted code is : ");
```

```
  for (i = 0; c[i] != '\0'; i++)
    {
     num = c[i];
    a = num;
    for (k = 1; a > 0; k = k * 10)
    {
    rem = a % 2;
    a = a / 2;
    inc++;
    }
    a = num;
    n = (bit - inc);
    for (t = 1; t <= n; t++)
    {
      printf("0");
    }
    for (k = 1; a > 0; k = k * 10)
    {
      rem = a % 2;
      a = a / 2;
      s = s + rem * k;
    }
    printf("%d", s);
    s = 0;
    inc = 0;
    n = 0;
  }
  printf("\n\n");
  return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code :
01001001001000000110000101101101001000000100100000110000101101101011010010110110100101110
Your Decrypted form is : I am Hamim.

```
// converting binary form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
 char jui[1000000];
 printf("Enter Encrypted code : ");
 gets(jui);
 printf("Your Decrypted form is : ");
 int u,p,hati,gora,multi=1,inte=0;
 for(u=0,gora=7;jui[u]!='\0';u++,gora--){
  if(jui[u]=='0'){
   hati=0;
  }
  else
  hati=1;
  for(p=1;p<=gora;p++){
  multi=multi*2;
  }
  inte=inte+(hati*multi);
  if(gora==0){
  printf("%c",inte);
  inte=0;
  gora=7+1;
```

```
  }
  multi=1;
 }
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code :
01001001001000000110000101101101001000000100000110000101101101010110100101101101
Enter bit number : 8
Your Decrypted form is : I am Hamim

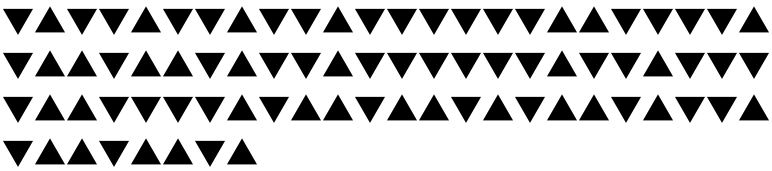
```
// converting binary form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
 char jui[1000000];
 printf("Enter Encrypted code : ");
 gets(jui);
 int bit;
 printf("Enter bit number : ");
  scanf("%d", &bit); // bit = 8
```

```
 while (bit < 8)
 {
 printf("Bit number must be greater or equal
than 8.\n");
 printf("Enter bit number again : ");
 scanf("%d", &bit);
 }
 printf("Your Decrypted form is : ");
 int u,p,hati,gora,multi=1,inte=0;
 for(u=0,gora=bit-1;jui[u]!='\0';u++,gora--){
 if(jui[u]=='0'){
 hati=0;
 }
 else
  hati=1;
  for(p=1;p<=gora;p++){
  multi=multi*2;
  }
  inte=inte+(hati*multi);
  if(gora==0){
  printf("%c",inte);
  inte=0;
  gora=bit;
  }
  multi=1;
 }
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter your messege : I am Hamim

Your Encrypted code is :



```
// converting text form to binary piramid form.
#include <stdio.h>
#include<string.h>
int main()
{
 char c[1000000];
 printf("Enter your messege : ");
 gets(c);
 int i,j,num,a,b,rem,k,s=0,inc=0,n=0,t;
 int t1=30, t2=31;
 printf("\nYour Encrypted code is : ");
 for(i=0;c[i]!='\0';i++){
 num=c[i];
 a=num;
 for(a=num;a>0;a=a/2){
    rem=a%2;
    s=s*10+rem;
    inc++;
  }
```

```
  n=(8-inc);
  for(t=1;t<=n;t++){
   printf("%c",t2);
  }
  for(j=1,a=s;j<=inc;j++,a=a/10){
    rem=a%10;
    if(rem==0){
        printf("%c",t2);
    }
    else if(rem==1){
        printf("%c",t1);
    }
  }
  s=0;
  inc=0;
 }
 printf("\n\n");
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code :
▼▲▼▼▲▼▼▲▼▼▲▼▼▼▼▼▼▲▲▼▼▼▼▲
▼▲▲▼▲▲▼▲▼▼▲▼▼▼▼▼▼▲▼▼▲▼▼▼
▼▲▲▼▼▼▼▲▼▲▲▼▲▲▼▲▼▲▲▼▲▼▼▲
▼▲▲▼▲▲▼▲
Your Decrypted form is : I am Hamim

```
// converting binary piramid form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
 char jui[1000000];
 printf("Enter Encrypted code : ");
 gets(jui);
 printf("Your Decrypted form is : ");
 int u,p,hati,gora,multi=1,inte=0;
 int t1=30, t2=31;
 for(u=0,gora=7;jui[u]!='\0';u++,gora--){
  if(jui[u]==31){
   hati=0;
  }
  else
  hati=1;
  for(p=1;p<=gora;p++){
  multi=multi*2;
  }
```

```
  inte=inte+(hati*multi);
  if(gora==0){
  printf("%c",inte);
  inte=0;
  gora=7+1;
  }
  multi=1;
 }
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter your messege : I am Hamim

Your Encrypted code is : ▲▼ ▼▲▼▲▼▲ ▲▼▲ ▲▲▲▼▼▲▼▲▼▲ ▼ ▼▼▲▼▲ ▲▲▲▼▼▲▲▼ ▼▲▲▼▼▲▼

```
// converting text form to 3 base piramid form.
#include <stdio.h>
#include<string.h>
int main()
{
 char c[1000000];
 printf("Enter your messege : ");
 gets(c);
 int i,j,num,a,b,rem,k,s=0,inc=0,n=0,t;
 int t1=30,t2=31,t3=32;
 printf("\nYour Encrypted code is : ");
 printf("%c",t1);
 for(i=0;c[i]!='\0';i++){
 num=c[i];
 a=num;
 for(a=num;a>0;a=a/3){
  rem=a%3;
  s=s*10+rem;
  inc++;
 }
 n=(5-inc); // 5bit
```

```
 for(t=1;t<=n;t++){
 printf("%c",t2);
 }
 for(j=1,a=s;j<=inc;j++,a=a/10){
 rem=a%10;
 if(rem==0){
 printf("%c",t2);
 }
 else if(rem==1){
 printf("%c",t1);
 }
 else if(rem==2){
 printf("%c",t3);
 }
 }
 s=0;
 inc=0;
 }
 printf("%c",t2);
 printf("\n\n");
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code : ▲▼ ▼▲▼▲▼▲ ▲▼▲ ▲▲▲▼▼▲▼▲▼▲▼ ▼▼▲▼▲ ▲▲▲▼▼▲▲▼ ▼▲▲▼▼▲▼
Your Decrypted form is : I am Hamim

```
// converting 3 base piramid form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
 char jui[1000000];
 printf("Enter Encrypted code : ");
 gets(jui);
 printf("Your Decrypted form is : ");
 int u,p,hati,gora,multi=1,inte=0;
 int t1=30, t2=31, t3=32;
 for(u=1,gora=4;jui[u]!='\0';u++,gora--){
 if(jui[u]==31){
  hati=0;
 }
 else if(jui[u]==30){
 hati=1;
 }
 else if(jui[u]==32){
 hati=2;
 }
```

```
 for(p=1;p<=gora;p++){
 multi=multi*3;
 }
 inte=inte+(hati*multi);
 if(gora==0){
 printf("%c",inte);
 inte=0;
 gora=4+1; //5 bit
 }
 multi=1;
 if(jui[u+2]=='\0'){
 u++;
 }
 }
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter your messege : I am Hamim

Your Encrypted code is :
▲▼►▲▼►▼▼▲►▼▲▲► ◄▲▼►▼▼▲▼►▼
▲►▼▲▲► ◄▲▲► ►▲▲► ◄▲

```
// converting text form to 4 base piramid form.
#include <stdio.h>
#include<string.h>
int main()
{
 char c[1000000];
 printf("Enter your messege : ");
 gets(c);
 int i,j,num,a,b,rem,k,s=0,inc=0,n=0,t;
 int t1=30,t2=31,t3=16,t4=17,t5=254;
 printf("\nYour Encrypted code is : \n");
 for(i=0;c[i]!='\0';i++){
 num=c[i];
 a=num;
 for(a=num;a>0;a=a/4){
  rem=a%4;
  s=s*10+rem;
  inc++;
 }
 n=(4-inc); // 4 bit
 for(t=1;t<=n;t++){
  printf("%c",t2);
 }
```

```
 for(j=1,a=s;j<=inc;j++,a=a/10){
 rem=a%10;
 if(rem==0){
 printf("%c",t2);
 }
 else if(rem==1){
 printf("%c",t1);
 }
 else if(rem==2){
 printf("%c",t3);
 }
 else if(rem==3){
 printf("%c",t4);
 }
 }
 s=0;
 inc=0;
 }
 printf("\n\n");
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code :
▲▼►▲▼►▼▼▲►▼▲▲►◄▲▼►▼▼▲▼►▼▲►▼▲▲►◄▲▲►►▲▲►◄▲
Your Decrypted form is : I am Hamim

```
// converting 4 base piramid form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
 char jui[1000000];
 printf("Enter Encrypted code : ");
 gets(jui);
 printf("Your Decrypted form is : ");
 int u,p,hati,gora,multi=1,inte=0;
 int t1=30,t2=31,t3=16,t4=17,t5=32;
 for(u=0,gora=3;jui[u]!='\0';u++,gora--){
 if(jui[u]==t2){
  hati=0;
 }
 else if(jui[u]==t1){
 hati=1;
 }
 else if(jui[u]==t3){
 hati=2;
 }
 else if(jui[u]==t4){
 hati=3;
 }
```

```
 for(p=1;p<=gora;p++){
 multi=multi*4;
 }
 inte=inte+(hati*multi);
 if(gora==0){
 printf("%c",inte);
 inte=0;
 gora=3+1; //4 bit
 }
 multi=1;
 }
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter your messege : I am Hamim

Your Encrypted code is :
►▼▲▼♦►►■▲◄▼▲▼♦►►▼▼►■▲◄▼▲►♦◄◄▼▲

```
// converting text form to 4 base piramid form.
#include <stdio.h>
#include<string.h>
int main()
{
 char c[1000000];
 printf("Enter your messege : ");
 gets(c);
 int i,j,num,a,b,rem,k,s=0,inc=0,n=0,t;
 int t1=30,t2=31,t3=16,t4=17,t5=254,t6=4;
 printf("\nYour Encrypted code is : \n");
 for(i=0;c[i]!='\0';i++){
 num=c[i];
 a=num;
 for(a=num;a>0;a=a/6){
  rem=a%6;
  s=s*10+rem;
  inc++;
 }
 n=(3-inc); // 3 bit
 for(t=1;t<=n;t++){
  printf("%c",t2);
 }
```

```
 for(j=1,a=s;j<=inc;j++,a=a/10){
 rem=a%10;
 if(rem==0){
 printf("%c",t2);
 }
 else if(rem==1){
 printf("%c",t1);
 }
 else if(rem==2){
 printf("%c",t3);
 }
 else if(rem==3){
 printf("%c",t4);
 }
 else if(rem==4){
 printf("%c",t5);
 }
 else if(rem==5){
 printf("%c",t6);
 }
 }
 s=0;
 inc=0;
 }
 printf("\n\n");
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code :
▸▼▲▼♦▸▸■▲◂▼▲▼♦▸▸▼▼▸■▲◂▼▲▸♦◂◂▼▲
Your Decrypted form is : I am Hamim

```
// converting 6 base piramid form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
 char jui[1000000];
 printf("Enter Encrypted code : ");
 gets(jui);
 printf("Your Decrypted form is : ");
 int u,p,hati,gora,multi=1,inte=0;
 int t1=30,t2=31,t3=16,t4=17,t5=254,t6=4;
 for(u=0,gora=2;jui[u]!='\0';u++,gora--){
 if(jui[u]==t2){
  hati=0;
 }
 else if(jui[u]==t1){
 hati=1;
 }
 else if(jui[u]==t3){
 hati=2;
 }
 else if(jui[u]==t4){
 hati=3;
 }
```

```
 else if(jui[u]==t6){
 hati=5;
 }
 else {
 hati=4;
 }
 for(p=1;p<=gora;p++){
 multi=multi*6;
 }
 inte=inte+(hati*multi);
 if(gora==0){
 printf("%c",inte);
 inte=0;
 gora=2+1; //3 bit
 }
 multi=1;
 }
 return 0;
}
```

- **Write a program that will show given bellow:**

  Enter angle in degree: 30
  cos(30) = 0.8660253882

```
#include<stdio.h>
#define PI 3.141592654
void main()
{
  // cos(x) program....
  printf("Enter angle in degree: ");
  float angle_degree;
  scanf("%f",&angle_degree);
  float angle_radian = angle_degree*PI/180;
  float ans=1,temp=1;
  int i,kak=9;
  for(i=1;i<=2*kak;i+=2){
    temp=temp*
(-1)*angle_radian*angle_radian/(i*(i+1));
    ans=ans+temp;
  }
  printf("cos(%.0f) = %.10f\n",angle_degree,ans);
}
```

- **Write a program that will show given bellow:**

  How many numbers do you want to enter : 5
  Enter 1 no. number : 1
  Enter 2 no. number : 2
  Enter 3 no. number : 3
  Enter 4 no. number : 4
  Enter 5 no. number : 12

  1 is lowest number and
  12 is heighest number.

```
#include <stdio.h>
#include <string.h>
int main()
{
 int a,b,temp,i,n;
 printf("How many numbers do you want to enter
: ");
 scanf("%d",&n);
 printf("Enter  1 no. number : ");
 scanf("%d",&a);
 printf("Enter  2 no. number : ");
 scanf("%d",&b);
 if(a<b){
   temp=b;
  }
  else if(a>b){
  temp=a;
  a=b;
  b=temp;
```

```
}
 else if(a==b){
 temp=b;
 }
 for(i=3;i<=n;i++){
 printf("Enter %2d no. number : ",i);
 scanf("%d",&b);

 if(a<b){
 a=a;
 b=b;
 }
 else if(a>b){
 a=b;
 b=a;
 }
 if(temp<b){
 temp=b;
 }
 }
 b=temp;
 printf("\n%d is lowest number and \n%d is
heighest number.\n",a,b);
 return 0;
}
```

- **Write a program that will show given bellow:**

  How many numbers do you want to enter : 5
  Enter sum of two number : 5
  1 no. number = 1
  2 no. number = 2
  3 no. number = 3
  4 no. number = 4
  5 no. number = 5
  (1 , 4)
  (2 , 3)
  (3 , 2)
  (4 , 1)

```
#include<stdio.h>
int main()
{
  printf("How many numbers do you want to enter :
");
  int limit;
  scanf("%d",&limit);
  int aray_1[limit];
  printf("Enter sum of two number : ");
  int sum_of_2_number;
  scanf("%d",&sum_of_2_number);
  for(int i=0; i<limit; i++){
    printf("%2d no. number = ",i+1);
    scanf("%d",&aray_1[i]);
  }
```

```
 for(int i=0; i<limit; i++){
    for(int j=0; j<limit; j++){
      if(i==j){
        continue;
      }
      if(sum_of_2_number == aray_1[i] + aray_1[j]){
        printf("(%d , %d)\n",aray_1[i],aray_1[j]);
      }
    }
  }
  return 8;
}
```

- **Write a program that will show given bellow:**

  Enter decimal number : 398

  Hexadecimal form : 18E

```
#include <stdio.h>
#include<string.h>
int main()
{
   // Converting Decimal to Hexadecimal
   int a,rem,k,i,j;
   printf("Enter decimal number : ");
   scanf("%d",&a);
   char ar[10],cr;
   for(i=0;a>=16;i++){
      rem=a%16;
      a=a/16;
      if(rem>=0 && rem<=9){

         ar[i]=rem+48;
      }
      else if(rem>=10 && rem<=15){
         ar[i]=rem+55;
      }
      if(a>=1 && a<=9){
         ar[i+1]=a+48;
      }
   }
   printf("\nHexadecimal form : ");
   for(j=i;j>=0;j--){
      printf("%c",ar[j]);
   }
   return 0;
}
```

or,

```
#include <stdio.h>
#include<string.h>
int main()
{
  // Converting Decimal to Hexadecimal
  int a,rem,k,i,j;
  printf("Enter decimal number : ");
  scanf("%d",&a);
  char ar[10],cr;
  for(i=0;a>=16;i++){
    rem=a%16;
    a=a/16;
    if(rem>=0 && rem<=9){

      ar[i]=rem+48;
    }
    else if(rem==10){
      ar[i]='A';
    }
    else if(rem==11){
      ar[i]='B';
    }
    else if(rem==12){
      ar[i]='C';
    }
    else if(rem==13){
      ar[i]='D';
    }
    else if(rem==14){
      ar[i]='E';
    }
```

```
 else if(rem==15){
 ar[i]='F';
 }
 if(a>=1 && a<=9){
 ar[i+1]=a+48;
 }
 }
 printf("\nHexadecimal form : ");
 for(j=i;j>=0;j--){
 printf("%c",ar[j]);
 }
 return 0;
}
```

- **Write a program that will show given bellow:**

  Enter decimal number : 48

  19 base form : 2H

```
#include <stdio.h>
#include<string.h>
int main()
{
  // Converting Decimal to Hexadecimal
  int a,rem,k,i,j;
  printf("Enter decimal number : ");
  scanf("%d",&a);
  char ar[10],cr;
  for(i=0;a>=19;i++){
    rem=a%19;
    a=a/19;
    if(rem>=0 && rem<=9){
      ar[i]=rem+48;
    }
    else if(rem==10){
      ar[i]='H';
    }
    else if(rem==11){
      ar[i]='R';
    }
    else if(rem==12){
      ar[i]='I';
    }
    else if(rem==13){
      ar[i]='D';
    }
    else if(rem==14){
      ar[i]='A';
    }
```

```
    else if(rem==15){
     ar[i]='M';
    }
    else if(rem==16){
     ar[i]=':';
    }
    else if(rem==17){
     ar[i]='!';
    }
    else if(rem==18){
     ar[i]='.';
    }
   if(a>=1 && a<=9){
    ar[i+1]=a+48;
    }
  }
  printf("\n19 base form : ");
  for(j=i;j>=0;j--){
  printf("%c",ar[j]);
  }
  return 0;
}
```

- **Write a program that will show given bellow:**

  Enter your messege : I am Hamim.
  Enter bit number : 3

  Your Encrypted code is :
03:01D05205A01D03M05205A05H05A028

```
// converting text form to 19 base form.
#include <stdio.h>
#include <string.h>
int main()
{
  char c[1000000],ar[1000000];
  printf("Enter your messege : ");
  gets(c);
  int i, j, num, a, h, rem, k, s = 0, inc = 0, n = 0, t,
bit;
  printf("Enter bit number : ");
  scanf("%d", &bit); // bit = 3
  while (bit < 3)
  {
    printf("Bit number must be greater or equal
than 3.\n");
    printf("Enter bit number again : ");
    scanf("%d", &bit);
  }
  printf("\nYour Encrypted code is : ");
  for (h = 0; c[h] != '\0'; h++)
  {
    num = c[h];
    a = num;
    for(i=0;a>=19;i++){
    rem=a%19;
    a=a/19;
    if(rem>=0 && rem<=9){
      ar[i]=rem+48;
    }
```

```
else if(rem==10){
  ar[i]='H';
}
else if(rem==11){
  ar[i]='R';
}
else if(rem==12){
  ar[i]='I';
}
else if(rem==13){
  ar[i]='D';
}
else if(rem==14){
  ar[i]='A';
}
else if(rem==15){
 ar[i]='M';
}
else if(rem==16){
 ar[i]=':';
}
else if(rem==17){
 ar[i]='!';
}
else if(rem==18){
 ar[i]='.';
}
if(a>=1 && a<=9){
ar[i+1]=a+48;
}
}
```

```
    n = bit - (i+1);
    for (t = 1; t <= n; t++)
    {
      printf("0");
    }
    for(j=i;j>=0;j--){
    printf("%c",ar[j]);
    }
  }
  printf("\n\n");
  return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code :
03:01D05205A01D03M05205A05H05A028
Enter bit number : 3
Your Decrypted form is : I am Hamim.

```
// converting 19 base form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
  char jui[1000000];
  printf("Enter Encrypted code : ");
  gets(jui);
  int bit;
  printf("Enter bit number : ");
  scanf("%d", &bit); // bit = ?
  printf("Your Decrypted form is : ");
  int u,p,hati,gora,multi=1,inte=0;
  for(u=0,gora=bit-1;jui[u]!='\0';u++,gora--){
   if(jui[u]>=48 && jui[u]<=57){
    hati=jui[u]-48;
   }
   else if(jui[u]=='H'){
    hati=10;
   }
   else if(jui[u]=='R'){
    hati=11;
   }
   else if(jui[u]=='I'){
    hati=12;
   }
   else if(jui[u]=='D'){
    hati=13;
   }
```

```
   else if(jui[u]=='A'){
    hati=14;
   }
   else if(jui[u]=='M'){
    hati=15;
   }
   else if(jui[u]==':'){
    hati=16;
   }
   else if(jui[u]=='!'){
    hati=17;
   }
   else if(jui[u]=='.'){
    hati=18;
   }
   for(p=1;p<=gora;p++){
   multi=multi*19;
   }
   inte=inte+(hati*multi);
   if(gora==0){
   printf("%c",inte);
   inte=0;
   gora=bit;
   }
   multi=1;
  }
 return 0;
}
```

- **Write a program that will show given bellow:**

Enter your messege : I am Hamim.

Your Encrypted code is :
03N01K05205L01K03M05205L05H05L028

```
// converting text form to 19 base form.
#include <stdio.h>
#include <string.h>
int main()
{
  char c[1000000],ar[1000000];
  printf("Enter your messege : ");
  gets(c);
  int i, j, num, a, h, rem, k, s = 0, inc = 0, n = 0, t,
bit=3;
  printf("\nYour Encrypted code is : ");
  for (h = 0; c[h] != '\0'; h++)
  {
    num = c[h];
    a = num;
    for(i=0;a>=19;i++){
    rem=a%19;
    a=a/19;
    if(rem>=0 && rem<=9){
      ar[i]=rem+48;
    }
    else if(rem>=10 && rem<=18){
      ar[i]=rem+62;
    }
```

```
    if(a>=1 && a<=9){
    ar[i+1]=a+48;
    }
    }
    n = bit - (i+1);
    for (t = 1; t <= n; t++)
    {
      printf("0");
    }
    for(j=i;j>=0;j--){
    printf("%c",ar[j]);
    }
  }
  printf("\n\n");
  return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code :
03N01K05205L01K03M05205L05H05L028

Your Decrypted form is : I am Hamim.

```
// converting 19 base form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
  char jui[1000000];
  printf("Enter Encrypted code : ");
  gets(jui);
  int bit=3;
  printf("\nYour Decrypted form is : ");
  int u,p,hati,gora,multi=1,inte=0;
  for(u=0,gora=bit-1;jui[u]!='\0';u++,gora--){
   if(jui[u]>=48 && jui[u]<=57){
    hati=jui[u]-48;
   }
   else if(jui[u]>=72 && jui[u]<=80){
    hati=jui[u]-62;
   }
   for(p=1;p<=gora;p++){
   multi=multi*19;
   }
   inte=inte+(hati*multi);
   if(gora==0){
   printf("%c",inte);
```

```
    inte=0;
    gora=bit;
    }
    multi=1;
  }
  printf("\n\n");
  return 0;
}
```

- **Write a program that will show given bellow:**

Enter your messege : I am HAMIM
Enter bit number : 3

Your Encrypted code is :
03N01K05205L01K03M03804103N041

```
// converting text form to 19 base form.
#include <stdio.h>
#include <string.h>
int main()
{
  char c[1000000],ar[1000000];
  printf("Enter your messege : ");
  gets(c);
  int i, j, num, a, h, rem, k, s = 0, inc = 0, n = 0, t, bit;
  printf("Enter bit number : ");
  scanf("%d", &bit); // bit = 3
  while (bit < 3)
  {
    printf("Bit number must be greater or equal than
3.\n");
    printf("Enter bit number again : ");
    scanf("%d", &bit);
  }
  printf("\nYour Encrypted code is : ");
  for (h = 0; c[h] != '\0'; h++)
  {
    num = c[h];
    a = num;
```

```
   for(i=0;a>=19;i++){
    rem=a%19;
    a=a/19;
    if(rem>=0 && rem<=9){
      ar[i]=rem+48;
    }
    else if(rem>=10 && rem<=18){
      ar[i]=rem+62;
    }
    if(a>=1 && a<=9){
    ar[i+1]=a+48;
    }
    }
    n = bit - (i+1);
    for (t = 1; t <= n; t++)
    {
      printf("0");
    }
    for(j=i;j>=0;j--){
    printf("%c",ar[j]);
    }
  }
  printf("\n\n");
  return 0;
}
```

- **Write a program that will show given bellow:**

Enter Encrypted code :
03N01K05205L01K03M03804103N041
Enter bit number : 3
Your Decrypted form is : I am HAMIM

```
// converting 19 base form to text form.
#include <stdio.h>
#include <string.h>
int main()
{
  char jui[1000000];
  printf("Enter Encrypted code : ");
  gets(jui);
  int bit;
  printf("Enter bit number : ");
  scanf("%d", &bit); // bit = ?
  printf("Your Decrypted form is : ");
  int u,p,hati,gora,multi=1,inte=0;
  for(u=0,gora=bit-1;jui[u]!='\0';u++,gora--){
   if(jui[u]>=48 && jui[u]<=57){
    hati=jui[u]-48;
   }
   else if(jui[u]>=72 && jui[u]<=80){
    hati=jui[u]-62;
   }
   for(p=1;p<=gora;p++){
   multi=multi*19;
   }
   inte=inte+(hati*multi);
```

```
    if(gora==0){
    printf("%c",inte);
    inte=0;
    gora=bit;
    }
    multi=1;
   }
  return 0;
}
```

- **Write a program that will show given bellow:**

  How many numbers do you want to enter : 5
  Enter lift shift : 2
  1 no. value : 1
  2 no. value : 2
  3 no. value : 3
  4 no. value : 4
  5 no. value : 5

  Updated value :
  1 no. value : 3
  2 no. value : 4
  3 no. value : 5
  4 no. value : 1
  5 no. value : 2

```
#include<stdio.h>
int main()
{
  int n,i,j,temp,m;
  printf("How many numbers do you want to
enter : ");
  scanf("%d",&n);
  int ar[n];
  printf("Enter lift shift : ");
  scanf("%d",&m);
  for(i=0;i<n;i++){
    printf("%d no. value : ",i+1);
    scanf("%d",&ar[i]);
  }
```

```
 for(i=1;i<=m;i++){
    for(j=0;j<n-1;j++){
      temp=ar[j];
      ar[j]=ar[j+1];
      ar[j+1]=temp;
    }
  }
  printf("\nUpdated value : \n");
  for(i=0;i<n;i++){
    printf("%d no. value : %d\n",i+1,ar[i]);
  }
  return 0;
}
```

- **Write a program that will show given bellow:**

Enter paragraph: I am Hamim. Hamim is Hamim.
Enter a word: Hamim

3 word match.

```
#include <stdio.h>
#include <string.h>
int main()
{
 char arr[500],arr1[50];

 printf("Enter paragraph: ");
 gets(arr);
 printf("Enter a word: ");
 gets(arr1);
 int i, j,t,count=0,mcount=0;
 for(i=0;arr[i]!='\0';i++){
  if(arr[i]==arr1[0]){
   for(t=0,j=i;arr1[t]!='\0';t++,j++){
    if(arr[j]==arr1[t]){
      count++;
     }
    else
    continue;
    }
  }
  if(count==strlen(arr1)){
   mcount++;
  }
  count=0;
 }
 printf("\n %d word match.",mcount);
 return 0;
}
```

- **Write a program that will show given bellow:**

4
Hamim
Sohan
Masum
Emon

Hamim
Sohan
Masum
Emon

```
#include <stdio.h>
#include <string.h>
int main()
{
   int i, n;
   char str[10][10];
   scanf("%d", &n);
   for (i = 0; i < n; i++)
   {
      scanf(" %[^\n]", &str[i]);
   }
      printf("\n");
   for (i = 0; i < n; i++)
   {
      printf("%s\n", str[i]);
   }
   return 0;
}
```

- **Write a program that will show given bellow:**

Enter 4 words :
AsdfghjklqweP
Hamim
AsdfghjklzxV
Jim
The 4 modified words are :
A11P
Hamim
A10V
Jim

```
#include<stdio.h>
#include<string.h>
int main()
{
  int n,i,j,k;
  printf("How many words do you want to enter : ");
  scanf("%d",&n);
  char arr[n][100];
  printf("Enter %d words :\n",n);
  for(i=0;i<n;i++){
    scanf("%s",&arr[i]);
  }
  printf("The %d modified words are :\n",n);
  for(i=0;i<n;i++){
    if(strlen(arr[i])>10){
```

```
printf("%c%d%c\n",arr[i][0],strlen(arr[i])-2,arr[i]
[strlen(arr[i])-1]);
    }
    else{
      printf("%s\n",arr[i]);
    }
  }
  return 0;
}
```

- **Write a program that will show given bellow:**

Enter your university name: Daffodil International University
Enter your name: Sohan Hasan
Enter your stusent ID: 221-15-5369
Enter your program: BSC in EEE

Your university name: Daffodil International University
Your name: Sohan Hasan
Your stusent ID: 221-15-5369
Your program: BSC in EEE

```
#include <stdio.h>
#include <string.h>
int main()
{
  int n, i, j, k;
  // printf("How many words do you want to enter
: ");
  // scanf("%d",&n);
  char arr[4][100];
  for (i = 0; i < 4; i++)
  {
    if (i == 0)
    {
      printf("Enter your university name: ");
    }
    else if (i == 1)
    {
      printf("Enter your name: ");
    }
    else if (i == 2)
    {
      printf("Enter your stusent ID: ");
    }
    else if (i == 3)
    {
      printf("Enter your program: ");
    }
    gets(arr[i]);
  }
  printf("\n\n", n);
```

```
  for (i = 0; i < 4; i++)
  {
    if (i == 0)
    {
      printf("Your university name: ");
    }
    else if (i == 1)
    {
      printf("Your name: ");
    }
    else if (i == 2)
    {
      printf("Your stusent ID: ");
    }
    else if (i == 3)
    {
      printf("Your program: ");
    }
    printf("%s\n", arr[i]);
  }
  return 0;
}
```

- **Write a program that will show given bellow:**

Enter string: AAbbcc
A character is 2 times in this string.
b character is 2 times in this string.
c character is 2 times in this string.
In this string 3 letters comes in 2 times.

```
#include<stdio.h>
#include<string.h>
int main()
{
   int i,j,temp,count=0, inc, m[10], k=0, mcount=0, p;
   printf("Enter string: ");
   char str1[400], str2[20], chr;
   scanf(" %[^\n]",&str1);
   for(i=0;str1[i]!='\0';i++){
      for(j=0;str1[j]!='\0';j++){
         if(str1[i]==str1[j] && i!=j && str1[i]!='1' &&
(str1[i]>='a' && str1[i]<='z' || str1[i]>='A' && str1[i]
<='Z')){
            count++;
            str1[j]='1';
         }
      }
      if(i==0){
         temp=count;
         inc=i;
         str2[k]=str1[i];
         ++k;
      }
```

```
      else if(temp==count){
          temp=count;
          inc=i;
          str2[k]=str1[i];
          ++k;
          p=1;
      }
      else if(temp<count){
          temp=count;
          inc=i;
          k=0;
          str2[k]=str1[i];
          ++k;
          p=0;
      }
      count=0;
   }
   printf("k = %d\n",k);
   if(p==0){
          printf("%c character is %d times in this
string.\n",str1[inc], temp+1);
   }
   else if(k>=0){
     for(i=0;i<k;i++){
          if(str2[i]!='1'){
          printf("%c character is %d times in this
string.\n",str2[i], temp+1);
       }
     }
   }
   return 0;
}
```

or,

```
#include<stdio.h>
#include<string.h>
int main()
{
   int i,j,temp,count=0, inc, m[10], k=0, mcount=0, p;
   printf("Enter string: ");
   char str1[400], str2[20], chr;
   scanf(" %[^\n]",&str1);
   for(i=0;str1[i]!='\0';i++){
      for(j=0;str1[j]!='\0';j++){
         if(str1[i]==str1[j] && (str1[i]>='a' && str1[i]
<='z' || str1[i]>='A' && str1[i]<='Z')){
            count++;
         }
      }
      if(i==0){
         temp=count;
         str2[k]=str1[i];
         ++k;
      }
      else if(i>0 && temp==count){
         temp=count;
         str2[k]=str1[i];
         ++k;
      }
```

```
      else if(i>0 && temp<count){
          temp=count;
          k=0;
       }
       count=0;
   }
   int letter=0;
   if(k>=0){
     for(i=0;i<k;i++){
          for(j=0;j<k;j++){
             if( str2[i]==str2[j] && i!=j){
                str2[j]='1';
             }
          }
     }
   }
   for(i=0;i<k;i++){
      if(str2[i]!='1'){
          printf("%c character is %d times in this
string.\n",str2[i], temp);
          letter++;
      }
   }
   printf("In this string %d letters comes in %d
times.\n",letter, temp);
   return 0;
}
```

- **Write a program that will show given bellow:**

How many integer numbers do you want to enter: 9
Enter number:
8
10
8
4
4
10
150
13
8
8 aparece 3 vez(es)
10 aparece 2 vez(es)
4 aparece 2 vez(es)
150 aparece 1 vez(es)
13 aparece 1 vez(es)

```
#include <stdio.h>
int main()
{
  int n, i, j, k, count ,temp;
  printf("How many integer numbers do you want to
enter: ");
  scanf("%d", &n);
  int a[n];
  printf("Enter number:\n");
  for (i = 0; i < n; i++)
  {
    scanf("%d", &a[i]);
  }
```

```
  for (i = 0; i < n ; i++)
  {
    count = 0;
    for (j = 0; j < n; j++)
    {
      if (a[i] == a[j] && i!=j && a[j]!=0)
      {
        count++;
        a[j]=0;
      }
    }
    if(count>0){
    printf("%d aparece %d vez(es)\n", a[i], count+1 );
    }
    else if(a[i]!=0){
    printf("%d aparece %d vez(es)\n", a[i], count+1 );
    }
  }
  return 0;
}
```

Question: Rearrange Matrix Values

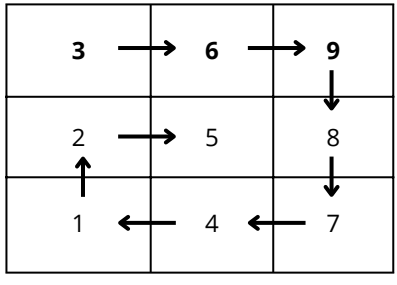
Write a program that takes input of the number of rows and columns of a matrix, followed by the values of the matrix. The program should rearrange the values of the matrix in a specific pattern and output the rearranged matrix.

Input:
Enter the number of rows: [integer]
Enter the number of columns: [integer]
Enter the values of the matrix: [row1_col1] [row1_col2] ... [row1_colN] [row2_col1] [row2_col2] ... [row2_colN] ... [rowM_col1] [rowM_col2] ... [rowM_colN]

Output:
The rearranged matrix: [rearranged_matrix_values]

Example:

Input:
Enter row : 3
Enter column : 3
Enter value:
3 6 9
2 5 8
1 4 7



Output:
3 6 9 8 7 4 1 2 5

Input:

Enter the number of rows: 3
Enter the number of columns: 4
Enter the values of the matrix:
1 2 3 4
5 6 7 8
9 10 11 12

Output:

The rearranged matrix: 1 2 3 4 8 12 11 10 9 5 6 7

- **Write a program that will show given bellow:**

Enter row : 3
Enter column : 4
Enter value:
1 2 3 4
5 6 7 8
9 10 11 12
1 2 3 4 8 12 11 10 9 5 6 7

```
#include<stdio.h>
int main()
{
    int r, c, i,j,x,y,h,p=0,t;
    printf("Enter row : ");
    scanf("%d",&r);
    printf("Enter column : ");
    scanf("%d",&c);
    int arr[r][c];
    int f=0, g=0;
    printf("Enter value:\n");
    for(int y=0;y<r;y++){
        for(int u=0;u<c;u++){
            scanf("%d",&arr[y][u]);
        }
    }
    for(i=1,x=c,y=r-1;h>0;i++){
        if(i%2!=0){
            h=x;
            x--;
        }
```

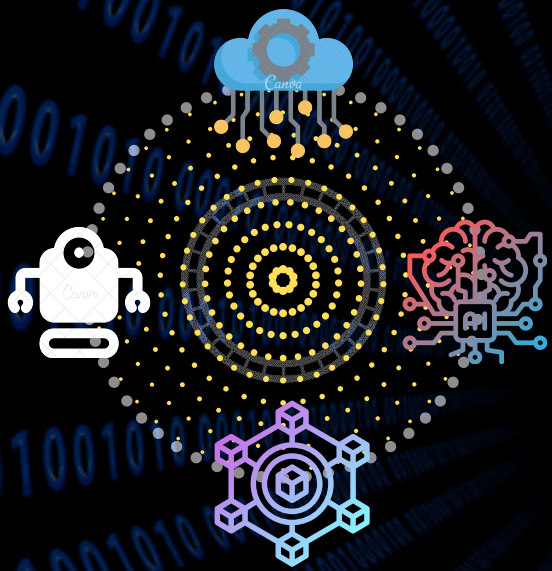
```
        else{
            h=y;
            y--;
        }
        t=i;
        for(j=1;j<=h;j++){
            if(t>4){
              t=t-4;
            }
            if(t==1){
                g++;
                if(i==1 && j==1){
                    g--;
                }
                p=arr[f][g];
            }
            else if(t==2){
                f++;
                p=arr[f][g];
            }
            else if(t==3){
                g--;
                p=arr[f][g];
            }
            else if(t==4){
                f--;
                p=arr[f][g];
            }
            printf("%d ",p);
        }
    }
}
```

- **Write a program that will show given bellow:**

Enter row : 4
Enter column : 3
1 2 3 6 9 12 11 10 7 4 5 8

```
#include<stdio.h>
int main()
{
   int r, c, i,j,x,y,h,p=0,t;
   printf("Enter row : ");
   scanf("%d",&r);
   printf("Enter column : ");
   scanf("%d",&c);
   for(i=1,x=c,y=r-1;h>0;i++){
      if(i%2!=0){
         h=x;
         x--;
      }
      else{
         h=y;
         y--;
      }
      t=i;
      for(j=1;j<=h;j++){
         if(t>4){
           t=t-4;
         }
         if(t==1){
            p=p+1;
         }
```

```
            else if(t==2){
                p=p+c;
            }
            else if(t==3){
                p=p-1;
            }
            else if(t==4){
                p=p-c;
            }
            printf("%d ",p);
        }
    }
}
```



C-PROGRAMMING (PROBLEM SOLVING) T.I.M. HA-MEAM

ABC PROKASHONI