DSTL Experiment :
Number conversion

Code:

```
#include <stdio.h>
#include <string.h>
#include <math.h>
int  rev(int n){
    int r=0;
    while(n!=0){
        r=r*10+n%10;
        n/=10;
    }
    return r;
}
void to_binary(int n){
    int bin;
    while(n!=0){
        bin=(bin*10)+(n%2);
        n/=2;
    }
    bin=rev(bin);
    printf(bin);
}
void to_octal(int n){
    int octal;
    while (n != 0) {
        octal = (octal*10)+(n % 8);
        n = n / 8;
    }
    octal=rev(octal);
    pritnf(octal);
}
void to_Decimal(int n){
    int dec = 0, i = 0, rem;
```

```
  while (n!=0) {
    rem = n % 10;
    n /= 10;
    dec += rem * pow(2, i);
    ++i;
  }

   printf(dec);
}

void to_hexa(int octal){
    int OCTALVALUES[] = {0, 1, 10, 11, 100, 101, 110, 111};

    long long tempOctal, binary, place;
    char hex[65] = "";
    int rem;
    tempOctal = octal;
    place = 1;
    binary = 0;
    while(tempOctal > 0)
    {
        rem = tempOctal % 10;
        binary = (OCTALVALUES[rem] * place) + binary;
        tempOctal /= 10;

        place *= 1000;
    }

   binary > 0)
    {
        rem = binary % 10000;
        switch(rem)
        {
            case 0:
                strcat(hex, "0");
                break;
            case 1:
```

```
    strcat(hex, "1");
    break;
case 10:
    strcat(hex, "2");
    break;
case 11:
    strcat(hex, "3");
    break;
case 100:
    strcat(hex, "4");
    break;
case 101:
    strcat(hex, "5");
    break;
case 110:
    strcat(hex, "6");
    break;
case 111:
    strcat(hex, "7");
    break;
case 1000:
    strcat(hex, "8");
    break;
case 1001:
    strcat(hex, "9");
    break;
case 1010:
    strcat(hex, "A");
    break;
case 1011:
    strcat(hex, "B");
    break;
case 1100:
    strcat(hex, "C");
    break;
case 1101:
    strcat(hex, "D");
```

```
            break;
        case 1110:
            strcat(hex, "E");
            break;
        case 1111:
            strcat(hex, "F");
        break;
      }

      binary /= 10000;
   }

   strrev(hex);
   printf(hex);
}

void to_hexoct(n){
        int sizea,i;
        printf ("Enter the array size:");
        scanf ("%d", &sizea);
        char hex[sizea+1];
        printf("Enter Hexadecimal Number:");
        for (i = 0; i < sizea+1; i++)
        {
        scanf ("%c", &hex[i]);
        }

        int value=0;
        int decimal=0;
        int j=strlen(hex);
        j--;
        int octal=0,sem=1;
        for(i=0;hex[i]!='\0';i++)
         {
        switch (hex[i])
         {
         case '0':
```

```
  value=0;
  break;
case '1':
  value=1;
  break;
case '2':
  value=2;
  break;
case '3':
  value=3;
  break;
case '4':
  value=4;
  break;
case '5':
  value=5;
  break;
case '6':
  value=6;
  break;
case '7':
  value=7;
  break;
case '8':
 value=8;
  break;
case '9':
  value=9;
  break;
case 'A':
   case 'a':
  value=10;
  break;
case 'B':
   case 'b':
  value=11;
  break;
```

```
            case 'C':
               case 'c':
              value=12;
              break;
            case 'D':
               case 'd':
              value=13;
               break;
            case 'E':
               case 'e':
              value=14;
               break;
            case 'F':
               case 'f':
              value=15;
               break;
             }
             decimal+=value*pow(16,j);
             j--;
           }

           while(decimal!=0)
              {
             octal=octal+(decimal%8)*sem;
             decimal=decimal/8;
             sem=sem*10;
              }

           printf("Octal Number is: %d",octal);
}

int main() {
        int n,ch;

printf("Enter the choice");
printf("1. Decimal to binary");
printf("2. Binary to Decimal");
```

```
printf("3. Decimal to Octal");
printf("4. Octal to Hexadecimal");
printf("5. Hexadeciaml to Octal");
scanf("%d",&ch);
printf("Enter the number");
scanf("%d",&n);
        switch(ch){
           case 1:
                printf("In Binary:",to_binary(n));
                break;
           case 2:
                 printf("In Decimal:",to_Decimal(n));
                 break;
           case 3:
                 printf("In Octal:",to_octal(n));
                 break;
           case 4:
                 printf("In Hexadecimal:",to_hexa(n));
                 break();
           case 5:
                 printf("In octal:",to_hexoct());
                 break();
           default:
                 printf("Enter correct choice");
                 break;

        }
        return 0;
}
```