# كلاس التحويل بين الأنظمة العددية

hamza


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```
#include"iostream"
using namespace std;
class hamzawey
{

public:

       int  power(int x,int y)
       {
              int p=1;
              for(int i=0 ; i<y ; i++)
        p *= x ;
              return p;
       }
       //الثنائي الى العشري من تحويل
       void decToBin (int d )
       {


     if ( d > 1)
        decToBin(d/2);

     cout << d%2 ;
       }
       //الثماني الى العشري من
       void decToOct (int d )
       {
     char octChar[] = {'0','1','2','3','4','5','6','7'} ;

     if ( d > 7 )
        decToOct(d/8);

     cout << octChar[d%8] ;
       }
       //عشري السادس الى العشري من
       void decToHex (int d )
       {
     char hexChar[] = {'0','1','2','3','4','5','6','7','8','9',
                       'A','B','C','D','E','F'};
     if ( d > 15 )
        decToHex(d/16);

     cout << hexChar[d%16] ;
       }
       //العشري الى الثنائي من
       int binToDec(char b[] )
       {
     int t = 0 ;
     int sum = 0 ;

     for (int i=0 , j=strlen(b)-1 ; i<strlen(b) ; i++ )
     {
         t = ( b[i]=='1' ) ? 1 : 0 ;
         t = t * power(2,j--);
         sum += t ;
     }

     return sum ;
       }
```

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```
  //الثماني الى الثنائي من
  void binToOct(char b[] )
  {
int d = binToDec(b);
decToOct(d);
  }
  //عشري السادس الى الثنائي من
  void binToHex (char b[] )
  {
int d = binToDec(b);
decToHex(d);
  }
  //الثنائي الى الثماني من
  void octToBin(char o[] )
  {
int d = octToDec(o);
decToBin(d);
  }
  //العشري الى الثماني من
  int octToDec    (char octal[])
  {

   int t = 0 ;
   int sum = 0 ;
   int  octalNum[]  = {0,1,2,3,4,5,6,7};
   char octalChar[] = {'0','1','2','3','4','5','6','7'};

   for (int i=0 , j=strlen(octal)-1 ; i<strlen(octal) ; i++ )
     {
        for (int k=0 ; k<16 ; k++)
          {
             if (octal[i] == octalChar[k])
               {
                  t = octalNum[k] ;
                      break;
               }
          }

             t = t * power(8,j--);
             sum += t ;
     }

    return sum ;
  }
  // عشري السادس الى الثماني من
  void octToHex (char o[] )
  {
int d = octToDec(o);
decToHex(d);
  }
  //الثنائي الى عشري السادس من
  void hexToBin(char h[] )
  {
int d = hexToDec(h);
decToBin(d);
  }
  //الثماني الى عشري السادس من
  void hexToOct (char h[] )
  {
int d = hexToDec(h);
decToOct(d);
```

```
      }
      //العشري الى عشري السادس من
      int hexToDec(char hex[]    )
      {
    int t = 0 ;
    int sum = 0 ;
    int  hexNum[]  = {0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15};
    char hexChar[] = {'0','1','2','3','4','5','6','7','8','9',
                      'A','B','C','D','E','F'};

    for (int i=0 , j=strlen(hex)-1 ; i<strlen(hex) ; i++ )
    {
        for (int k=0 ; k<16 ; k++)
        {
            if (hex[i] == hexChar[k])
            {
               t = hexNum[k] ;
               break;
            }
        }

        t = t * power(16,j--);
        sum += t ;
    }


    return sum ;
       {

       }
}
      int menue()
      {
             cout<<" * ============================================== *\n";
             cout<<"|| press (  1  ) To Convert from Binary To Octal   ||\n";
             cout<<"|| press (  2  ) To Convert from Binary To Decimal ||\n";
             cout<<"|| press (  3  ) To Convert from Binary To Hex     ||\n";
             cout<<"|| press (  4  ) To Convert from Octal To Binary   ||\n";
             cout<<"|| press (  5  ) To Convert from Octal To Decimal  ||\n";
             cout<<"|| press (  6  ) To Convert from Octal To Hex      ||\n";
             cout<<"|| press (  7  ) To Convert from Decimal To Binary ||\n";
             cout<<"|| press (  8  ) To Convert from Decimal To Octal  ||\n";
             cout<<"|| press (  9  ) To Convert from Decimal To Hex    ||\n";
             cout<<"|| press (  10 ) To Convert from Hex To Binary     ||\n";
             cout<<"|| press (  11 ) To Convert from Hex To Octal      ||\n";
             cout<<"|| press (  12 ) To Convert from Hex To Decimal    ||\n";
             cout<<"|| press (  13 ) To Exit                          ||\n";
             cout<<" * ============================================== *\n";
             cout<<"\t\t";
             int cho;cin>>cho;return cho;
      }

      };
int main()
{
      hamzawey h;
int d;
char ss[32];bool zizo=true;
      do
      {
```

```
switch(h.menue())
{
case 1 :
                        //ثماني الى ثنائي من عرض
                   cout<<"Enter The Binary   Number : ";
               cin>>ss;
                   cout<<"\n\n\t"<<ss<<" in Octal    :";
                   h.binToOct(ss);break;
case 2 :// عشري الى ثنائي من عرض
             cout<<"Enter The Binary   Number : ";
                cin>>ss;
                   cout<<"\n\n\t"<<ss<<" in Decimal    :";
                   h.binToDec(ss);break;
case 3 ://عشري سادس الى ثنائي من عرض
               cout<<"Enter The Binary   Number : ";
               cin>>ss;
                   cout<<"\n\n\t"<<ss<<" in Hex    :";
                   h.binToHex(ss);break;
case 4 ://ثنائي الى ثماني من عرض
             cout<<"Enter The Octal   Number : ";
                cin>>ss;
                   cout<<"\n\n\t"<<ss<<" in Binary    :";
                   h.octToBin(ss);break;
case 5 ://عشري الى ثماني من عروض
             cout<<"Enter The Octal   Number : ";
                cin>>ss;
                   cout<<"\n\n\t"<<ss<<" in Decimal    :";
                   h.octToDec(ss);break;
case 6 ://عشري سادس الى ثماني من عرض
             cout<<"Enter The Octal   Number : ";
                cin>>ss;
                   cout<<"\n\n\t"<<ss<<" in Hex    :";
                   h.octToHex(ss);break;
case 7 ://ثنائي الى عشري من عرض
             cout<<"Enter The Decimal   Number : ";
                cin>>d;
                   cout<<"\n\n\t"<<d<<" in Binary    :";
                   h.decToBin(d);break;
case 8 ://ثماني الى عشري من عرض
             cout<<"Enter The Decimal   Number : ";
                cin>>d;
                   cout<<"\n\n\t"<<d<<" in Octal    :";
                   h.decToOct(d);break;
case 9 ://عشري سادس الى عشري من عرض
             cout<<"Enter The Decimal   Number : ";
                cin>>d;
                   cout<<"\n\n\t"<<d<<" in Hex    :";
                   h.decToHex(d);break;
case 10 ://ثنائي الى عشري سادس من عرض
             cout<<"Enter The Hex   Number : ";
                cin>>ss;
                   cout<<"\n\n\t"<<ss<<" in Binary    :";
                   h.hexToBin(ss);break;

case 11 ://ثماني الى عشري سادس من عرض
             cout<<"Enter The Hex   Number : ";
                cin>>ss;
                   cout<<"\n\n\t"<<ss<<" in Octal    :";
                   h.hexToOct(ss);break;
```

```
            case 12 ://عشري الى عشري سادس من عرض
                      cout<<"Enter The Hex   Number : ";
                         cin>>ss;
                            cout<<"\n\n\t"<<ss<<" in Decimal    :";
                            h.hexToDec(ss);break;

            case 13 :zizo=!zizo;break;
            }
            cout<<"\n\n";
            system("pause");
            system("cls");

      }while(zizo==true);
      cout<<"\n\n"<<"thank you for using our small program ,come again ,good
by \n\t\t\t good luck \t\t hamzawey \n\n\n";
      system("pause");


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