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#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<math.h>

int dth(int dec)
{
    int x,c=0;
    char *A;
    A=(char *)malloc(sizeof(char)*50);

    if(dec==0)
    {
        printf("0");
        return 1;
    }
    while(dec!=0)
    {
        // printf("\n\nINSide While");
        x=dec%16;
        dec/=16;
        switch(x)
        {
            case 0:A[c++]='0';
                break;
            case 1:A[c++]='1';
                break;
            case 2:A[c++]='2';
                break;
            case 3:A[c++]='3';
                break;
            case 4:A[c++]='4';
                break;
            case 5:A[c++]='5';
                break;
            case 6:A[c++]='6';
                break;
            case 7:A[c++]='7';
                break;
            case 8:A[c++]='8';
                break;
            case 9:A[c++]='9';
                break;
            case 10:A[c++]='A';
                break;
            case 11:A[c++]='B';
                break;
            case 12:A[c++]='C';
                break;
            case 13:A[c++]='D';
                break;
            case 14:A[c++]='E';
                break;
            case 15:A[c++]='F';
                break;
            default:printf("default case");
        }
    }
}

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        for(x=c-1;x>=0;x--)
        {
            printf("%c",A[x]);
        }
        return 0;
    }

    int bth()
    {
        char *bin;
        int dec=0,in=0,i,l;
        bin=(char *)malloc(sizeof(char)*50);
        printf("\n\nEnter the Binary value : ");
        gets(bin);
        gets(bin);
        l=strlen(bin);
        for(i=0;i<l;i++)
        {
            if(bin[i]=='1')
                dec+=pow(2,l-1-i);
        }
        printf("\n\nThe decimal value is %d",dec);
        printf("\n\nThe HexaDecimal Value is :");
        dth(dec);
        return 0;
    }

    int htd(char *hex)
    {
        int l,i,dec=0;
        l=strlen(hex);
        for(i=0;i<l;i++)
        {
            if(hex[i]=='1')
                dec+=pow(2,l-1-i);
            else if(hex[i]=='2')
                dec+=(2*pow(16,l-1-i));
            else if(hex[i]=='3')
                dec+=(3*pow(16,l-1-i));
            else if(hex[i]=='4')
                dec+=(4*pow(16,l-1-i));
            else if(hex[i]=='5')
                dec+=(5*pow(16,l-1-i));
            else if(hex[i]=='6')
                dec+=(6*pow(16,l-1-i));
            else if(hex[i]=='7')
                dec+=(7*pow(16,l-1-i));
            else if(hex[i]=='8')
                dec+=(8*pow(16,l-1-i));
            else if(hex[i]=='9')
                dec+=(9*pow(16,l-1-i));
            else if(hex[i]=='A')
                dec+=(10*pow(16,l-1-i));
            else if(hex[i]=='B')
                dec+=(11*pow(16,l-1-i));
            else if(hex[i]=='C')
                dec+=(12*pow(16,l-1-i));
            else if(hex[i]=='D')

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        dec+=(13*pow(16,l-1-i));
    else if(hex[i]=='E')
        dec+=(14*pow(16,l-1-i));
    else if(hex[i]=='F')
        dec+=(15*pow(16,l-1-i));
    }
    return dec;
}

int htb()
{
    char *h;
    int A[50];
    int dec=0,c=0,x=0;
    h=(char *)malloc(sizeof(char)*50);
    printf("\n\nEnter the Hexadecimal value :");
    gets(h);
    gets(h);
    dec=htd(h);
    while(dec!=0)
    {
        // printf("\n\nINSide While");
        x=dec%2;
        dec/=2;
        switch(x)
        {
            case 0:A[c++]='0';
                break;
            case 1:A[c++]='1';
                break;
        }
    }
    printf("\n\nThe Binary value is : ");
    for(x=c-1;x>=0;x--)
    {
        printf("%c",A[x]);
    }
    return 1;
}

int main()
{
    int cho,dec;
    char *h;
    h=(char *)malloc(sizeof(char)*50);
    while(1)
    {
        printf("\n\nEnter Your Choice :\n1: Decimal to HexaDecimal\n2:
Binary to HexaDecimal\n3:HexaDecimal to Decimal\n4: HexaDecimal to Binary \n
ANYTHING ELSE TO EXIT ");
        scanf("%d",&cho);
        if(cho==1)
        {
            printf("\n\nEnter the decimal value :");
            scanf("%d",&dec);
            printf("\n\nHexaDecimal value : ");
            dth(dec);

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    }
    else if(cho==2)
        bth();
    else if(cho==3)
    {
        printf("\n\nEnter the Hexadecimal value :");
        gets(h);
        gets(h);
        printf("\n\nDecimal value : %d ",htd(h));

    }
    else if(cho==4)
        htb();
    else
        break;
}
return 0;

}
```