//Pushpak verlekar

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//conversion of binary to Hexadecimal and octal

PROGRAM:

#include<stdio.h>

#include<string.h>

int stack[50],top=-1;

int pop();

void push(int);

int todecimal(int);

void tobinary(int,int);

void main()

{

int choice,number,remainder,digit,i=0;

char hexa[20];

do

{

printf("1: HEXADECIMAL TO BINARY\n2: OCTAL TO BINARY\n");

printf("3: BINARY TO HEXADECIMAL\n4: BINARY TO OCTAL\n0: EXIT\n");

printf("ENTER YOUR CHOICE: ");

scanf("%d",&choice);

switch(choice)

{

case 1: //CONVERTING HEXADECIMAL NUMBER TO BINARY

printf("\nENTER A HEXADECIMAL NUMBER: ");

scanf("%s",&hexa);

printf("CORRESPONDING BINARY NUMBER IS ");

for(i=0;i<strlen(hexa);i++)

{

digit=hexa[i];

switch(digit)

{

case 'A': tobinary(4,10);

break;

case 'B': tobinary(4,11);

break;

case 'C': tobinary(4,12);

break;

case 'D': tobinary(4,13);

break;

case 'E': tobinary(4,14);

break;

case 'F': tobinary(4,15);

break;

default: tobinary(4,digit-'0');

}

}

break;

case 2: //CONVERTING OCTAL NUMBER TO BINARY

printf("\nENTER AN OCTAL NUMBER: ");

scanf("%d",&number);

printf("CORRESPONDING OCTAL NUMBER IS : ");

while(number)

{

digit=number%10;

i=i\*10+digit;

number=number/10;

}

while(i!=0)

{

digit=i%10;

tobinary(3,digit);

i=i/10;

}

break;

case 3: //CONVERTING BINARY NUMBER TO HEXADECIMAL

printf("\nENTER A BINARY NUMBER: ");

scanf("%d",&number);

while(number)

{

remainder=number%10000;

switch(remainder)

{

case 1010: push('A');

break;

case 1011: push('B');

break;

case 1100: push('C');

break;

case 1101: push('D');

break;

case 1110: push('E');

break;

case 1111: push('F');

break;

default: push(todecimal(remainder));

}

number=number/10000;

}

printf("CORRESPONDING HEXADECIMAL NUMBER IS ");

while(top!=-1)

{

digit=pop();

switch(digit)

{

case 65: printf("%c",digit);

break;

case 66: printf("%c",digit);

break;

case 67: printf("%c",digit);

break;

case 68: printf("%c",digit);

break;

case 69: printf("%c",digit);

break;

case 70: printf("%c",digit);

break;

default: printf("%d",digit);

}

}

break;

case 4: //CONVERTING BINARY NUMBER TO OCTAL

printf("\nENTER A BINARY NUMBER: ");

scanf("%d",&number);

while(number)

{

remainder=number%1000;

push(remainder);

number=number/1000;

}

printf("CORRESPONDING OCTAL NUMBER IS ");

while(top!=-1)

{

digit=pop();

digit=todecimal(digit);

printf("%d",digit);

}

break;

}

printf("\n\n");

} while(choice);

}

int todecimal(int number)

{

int sum=0,p=0;

while(number)

{

sum=sum+(number%10)\*pow(2,p);

number=number/10;

p++;

}

return sum;

}

void push(int n)

{

stack[++top]=n;

}

int pop()

{

return(stack[top--]);

}

void tobinary(int bit,int n)

{

while(n>0)

{

push(n%2);

n=n/2;

}

for(n=top+1;n<bit;n++)

{

printf("0");

}

while(top!=-1)

printf("%d",pop());

printf(" ");

}

outputs:

1: HEXADECIMAL TO BINARY

2: OCTAL TO BINARY

3: BINARY TO HEXADECIMAL

4: BINARY TO OCTAL

0: EXIT

ENTER YOUR CHOICE: 1

ENTER A HEXADECIMAL NUMBER: 12AC

CORRESPONDING BINARY NUMBER IS 0001 0010 1010 1100

1: HEXADECIMAL TO BINARY

2: OCTAL TO BINARY

3: BINARY TO HEXADECIMAL

4: BINARY TO OCTAL

0: EXIT

ENTER YOUR CHOICE: 2

ENTER AN OCTAL NUMBER: 45

CORRESPONDING OCTAL NUMBER IS : 100 101

1: HEXADECIMAL TO BINARY

2: OCTAL TO BINARY

3: BINARY TO HEXADECIMAL

4: BINARY TO OCTAL

0: EXIT

ENTER YOUR CHOICE: 3

ENTER A BINARY NUMBER: 1111

CORRESPONDING HEXADECIMAL NUMBER IS F

1: HEXADECIMAL TO BINARY

2: OCTAL TO BINARY

3: BINARY TO HEXADECIMAL

4: BINARY TO OCTAL

0: EXIT

ENTER YOUR CHOICE: 4

ENTER A BINARY NUMBER: 111

CORRESPONDING OCTAL NUMBER IS 7