#include<conio.h>

#include<stdio.h>

#include<math.h>

#include<stdlib.h>

void main()

{

float wc,tou,M,hd[50],h[50],wn,pi,n;

int ch,p;

char HPF;

printf("\n\nEnter the length(M) of the filter(coefficient):");

scanf("%f",&M);

p=(int)M;

printf("\n\nEnter the cutoff Frequency(Discrete Frequency) Wc:");

scanf("%f",&wc);

tou=(M-1)/2;

pi=22.0/7.0;

for(int n=0;n<=M-1;n++)

{

hd[n]=(sin(wc\*(n-tou)))/(pi\*(n-tou));

if((n==tou)&&((p/2)\*2!=p))

{

hd[n]=wc/pi;

for(n=0;n<=M;n++)

{

hd[n]=(sin(pi\*(n-tou))-sin(wc\*(n-tou)))/(pi\*(n-tou));

if((n==tou)&&((p/2)\*2!=p))

{

hd[n]=(wc/pi);

}

}

for(n=0;n<=M-1;n++)

{

wn=(1-cos((2\*pi\*(float)n)/(float)(M-1)));

h[n]=hd[n]\*(float)wn;

}

}

}

printf("\n\nCoefficient of High Pass FIR Filter are as follows");

for(int n=0;n<=M-1;n++)

{

printf("\n\nh[%d]=%f",n,h[n]);

}

}