Overlapadd.C

```
#include<stdio.h>

int cir_out[20][10];

void circonv(int x[],int h[], int len, int arr_flag){
      int i,k,modval;
      int maxlen = len;
    int y[maxlen];
    for(i=0;i<maxlen;i++)
    {
        y[i]=0;
        for(k=0;k<maxlen;k++)
        {
            if((i-k)<0)
            {
              modval = maxlen+(i-k);
              y[i] += (x[k]*h[modval]);
            }
            else
            {
                y[i] += (x[k]*h[(i-k)]);
            }
        }
        cir_out[arr_flag][i] = y[i];
    }

    for(i=0;i<maxlen;i++)
    {
        printf("%d\t",cir_out[arr_flag][i]);
    }
    printf("\n");
}

void overlapadd(int l, int n, int len, int out_len)
{
    int i,j;
    int overlap_arr[len][out_len];

    for(i=0; i<len ; i++)
    {
        for(j=0; j<out_len ; j++)
        {

            overlap_arr[i][j] = 0;
        }
    }

    for(i=0; i<len ; i++)
    {
        for(j=0; j<n ; j++)
        {
            if(j+(l*i) < out_len)
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            {
                overlap_arr[1][j+(l*i)] += cir_out[i][j];
                printf("arr:%d,\t i:%d,\t j:%d\n",
overlap_arr[1][j+(l*i)],i,j+(l*i));
            }
            else
                break;
        }
    }

        for(j=0; j<out_len ; j++)
        {
            printf("%d\t", overlap_arr[1][j]);
        }
}

int main(){
    int h[20], x[20];
    int lx,lh,i;
    printf("Enter length of x[n]\n");
    scanf("%d",&lx);
    printf("Enter length of h[n]\n");
    scanf("%d",&lh);

    printf("Enter elements for x[n]\n");
    for(i=0;i<lx;i++)
    {
        scanf("%d",&x[i]);
    }
    printf("Enter elements for h[n]\n");
    for(i=0;i<lh;i++)
    {
        scanf("%d",&h[i]);
    }

    int l = 4 , m = lh, n = l+m-1;
    int temp[n], tempFlag=1, overlap_arr_length=0, count = 0;
    if(lh < n)
    {
        for(i=lh;i<n;i++)
            h[i] = 0;
    }
    while(tempFlag != 0)
    {

        for(i=0;i<n;i++)
        {

            if(i < l && count < lx)
            {
                temp[i] = x[count];
                count++;
            }
            else
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                temp[i] = 0;
        }
        circonv(temp, h, n, tempFlag);
        tempFlag++;
        if(count == lx)
        {
            overlap_arr_length = tempFlag;
            tempFlag = 0;
        }
    }
    overlapadd(l,n, overlap_arr_length, (lx+lh-1));
}
/* OUTPUT:
Enter length of x[n]
13
Enter length of h[n]
4
Enter elements for x[n]
1 2 -1 3 -2 1 0 3 4 -2 3 1 4
Enter elements for h[n]
1 -1 0 1

Linear convolution by overlapadd
1     1     -3    5     -3    2     2     1     2     -6    8     2   -2  2
1   1
*/
```