```cpp
#include <bits/stdc++.h>
#define ll long long
#define rep(i, n) for (int i = 0; i < n; ++i)
using namespace std;
typedef pair<int,int> P;
map<int,P> hun;//
set<int> kouho;
vector<int> del;
int main()
{
    while (1)
    {
        hun.clear();
        kouho.clear();
        int n, m;
        cin >> n >> m;
        if (n == 0)
            break;
        int num[11] = {};
        int a[100];
        int w[10];
        for(int i=0;i<n;i++)
            cin>>a[i];
        for(int i=0;i<m;i++)
            cin>>w[i];
        //0 notuse
        //1 left
        //2 right
        for (int i = 0; i < pow(3, m)+1; i++)
        {
            num[0]++;
            for (int j = 0; j < m; j++)
            {
                if (num[j] == 3)
                {
                    num[j + 1]++;
                    num[j] = 0;
                }
            }
            int l = 0;
            int r = 0;
            for (int j = 0; j < m; j++)
            {
                if (num[j] == 1)
                    l +=w[j];
                else if(num[j]==2)
                    r+=w[j];
                hun[abs(r-l)]=P(l,r);
            }
        }
        /*
        cout << "----hun---------"<<endl;
        for (auto &&e: hun) {
            cout<<e.first<<endl;
        }
        cout<<"end------------"<<endl;
        */
        //input end
        int ans=2;
        bool f=false;
```

```cpp
 61        for(int i=0;i<n;i++)
 62        {
 63            if (hun.count(a[i])>0)
 64                continue;
 65            if(!f)
 66            {
 67                f=true;
 68                for (auto &&e: hun) {
 69                    int tmp = abs(a[i] + e.second.second - e.second.first);
 70                    kouho.insert(tmp);
 71                    tmp = abs(a[i] + e.second.first - e.second.second);
 72                    kouho.insert(tmp);
 73                }
 74                // for (auto &&k: kouho) cout << k << endl;
 75            }else{
 76                del.clear();
 77                for(auto &&k: kouho) {
 78                    bool g=false;
 79                    for (auto &&h: hun) {
 80                        if (abs(h.second.first + k - h.second.second) == a[i] ||
    abs(h.second.second + k - h.second.first) == a[i])
 81                        {
 82                            g=true;
 83                            break;
 84                        }
 85                    }
 86                    if(!g)
 87                        del.push_back(k);
 88                }
 89                //delete
 90                for(int j=0;j<del.size();j++)
 91                    kouho.erase(del[j]);
 92                if(kouho.size()==0)
 93                {
 94                    ans=-1;
 95                    break;
 96                }
 97            }
 98        }
 99        if(ans==-1)
100            cout<<-1<<endl;
101        else{
102            if(!f)
103                cout<<0<<endl;
104            else
105                cout<<*kouho.begin()<<endl;
106        }
107    }
108 }
```