DEV JATINBHAI PATEL

CE091

20CEUOS018

DAA LAB3

Making Change:

```
#include <bits/stdc++.h>
using namespace std;
void makechange(int notes[],int sum,int deno){
    //int n = sizeof(notes) / sizeof(notes[0]);
   vector<int> coins;
   for (int i = deno - 1; i >= 0; i--) {
      while (sum >= notes[i]) {
         sum -= notes[i];
         coins.push_back(notes[i]);
      }
   }
   for (int i = 0; i < coins.size(); i++)
      cout << coins[i] << "\t";
}
int main(){
    int n;
    cin>>n;
   int no_of_deno;
   cin>>no_of_deno;
   int notes[no_of_deno];
   for(int i=0;i<no_of_deno;i++)
   {
       cin>>notes[i];
   }
   sort(notes,notes+no_of_deno);
   cout << "The minimum number of coins/notes that sum up " << n << " is \t ";
   makechange(notes,n,no_of_deno);
   return 0;
}
```

```
580
5
200 100 50 20 10
The minimum number of coins/notes that sum up 580 is     200     200     100     50      20      10
```

Fractional Knapsack:

```cpp
#include <bits/stdc++.h>
#define vi vector<int>
#define vvi vector<vi>
#define pii pair<int,int>
#define vii vector<pii>
#define rep(i,a,b) for(int i=a;i<b;i++)
#define ff first
#define ll long long
#define ss second
using namespace std;

bool compare(pii z1,pii z2){
    double v1=(double) z1.ff/z1.ss;
    double v2=(double) z2.ff/z2.ss;
    return v1>v2;
}
int main(){
    int n;
cin>>n;
    vii a(n);
    for (int i = 0; i < n; i++)
    {
        cin>>a[i].ff>>a[i].ss;
    }
    int w;
    cin>>w;
    sort(a.begin(),a.end(),compare);
    int ans=0;
    for (int i = 0; i < n; i++)
    {
        if(w>=a[i].ss){
            ans+=a[i].ff;
            w-=a[i].ss;
            continue;
        }
        double vw=(double)a[i].ff/a[i].ss;
        ans+=vw*w;
        w=0;
        break;
    }
    cout<<endl<<ans<<endl;

return 0;
}
```

```
5
21 7
24 4
12 6
40 5
30 6
20

109
```