

# DAA – Lab8

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## Source Code:

```
#include "stdio.h"
int main(int argc, char const *argv[])
{
    int n = 5;
    float capacity = 10;
    float w[5] = {2,3,4,2,5};
    float p[5] = {20,25,30,20,15};
    float pw[5];
    int i;
    for (int i = 0; i < n; ++i)
    {
        pw[i] = (float)p[i]/(float)w[i];
        // printf("%f\n",pw[i]);
    }
    float swap;
    for (int i = 0; i < n-1; ++i)
    {
        for (int j = 0; j < n-i-1; ++j)
        {
            if ((float)pw[j] > (float)pw[j+1])
            {
                /* Sort pw */
                swap = pw[j];
                pw[j] = pw[j+1];
                pw[j+1] = swap;

                /* Sort p */
                swap = p[j];
                p[j] = p[j+1];
                p[j+1] = swap;

                /* Sort w */
                swap = w[j];
                w[j] = w[j+1];
                w[j+1] = swap;
            }
        }
    }

    printf("Profits\n");
    for (i = 0; i < n; ++i){
        printf("%f\t",p[i]);
    }
    printf("\n");
}
```

```

printf("Weights\n");
for (i = 0; i < n; ++i){
    printf("%f\t",w[i]);
}
printf("\n");

printf("Profits/Weights\n");
for (i = 0; i < n; ++i){
    printf("%f\t",pw[i]);
}
printf("\n");

float fractionw=0;
float fractionp = 0;
float profit = 0;
float take = 0;
for (int i = 0; i < n; ++i)
{
    if (w[i]>(capacity-take))
    {
        profit = ((capacity-take)/w[i]) * p[i];
        // printf("item taken = [%f,%f], fraction = %f\n",p[i], w[i], ((capacity-
take)/w[i]) * w[i]);
        break;
    }

    take = take + w[i];
    profit = profit + p[i];
    // printf("%f\n",p[i]);
    // printf("item taken = [%f,%f]\n",p[i], w[i]);
}
// printf("\n\n");

return 0;
}

```

## Screenshot:

```

vishal@OHWELL:/mnt/c/Users/vishg/Desktop$ ./a.out
Profits
15.000000      30.000000      25.000000      20.000000      20.000000
Weights
5.000000      4.000000      3.000000      2.000000      2.000000
Profits/Weights
3.000000      7.500000      8.333333      10.000000      10.000000
item taken = [15,5]
item taken = [30, 4]
item taken = [25, 3]
Total profit = 53.3333, Total Weight = 20
vishal@OHWELL:/mnt/c/Users/vishg/Desktop$

```