```
// Bai toan Cai ba lo 1
// Moi do vat co so luong khong han che
// Du lieu cho trong file CaiBalo1.INP
// Giai bai toan bang thuat toan THAM AN

#include <stdio.h>
#include <malloc.h>
#include <string.h>

typedef struct {
        char TenDV[20];
        float TL, GT, DG;
        int PA;
}DoVat;

DoVat *ReadFromFile(float *W, int *n){
    FILE *f;
    f = fopen("CaiBalo1.INP", "r");
    fscanf(f, "%f",W); // Xac dinh trong luong Ba lo
         DoVat *dsdv;
         dsdv=(DoVat*)malloc(sizeof(DoVat));
         int i=0;
         while (!feof(f)){
           fscanf(f, "%f%f%[^\n]",&dsdv[i].TL,&dsdv[i].GT,&dsdv[i].TenDV);
           dsdv[i].DG=dsdv[i].GT/dsdv[i].TL;
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            dsdv[i].PA=0;
            i++;
            dsdv=(DoVat*)realloc(dsdv, sizeof(DoVat)*(i+1));
          }
          *n=i;
    fclose(f);
    return dsdv;
}

void swap(DoVat *x, DoVat *y){
        DoVat Temp;
        Temp = *x;
        *x   = *y;
        *y   = Temp;
}

void BubbleSort(DoVat *dsdv, int n){
        int i,j;
        for(i=0; i<=n-2; i++)
           for (j=n-1; j>=i+1; j--){
                 if (dsdv[j].DG>dsdv[j-1].DG)
                       swap(&dsdv[j],&dsdv[j-1]);
           }
}
```

```
void InDSDV(DoVat *dsdv, int n, float W){
	int i;
	float TongTL=0.0, TongGT=0.0;
	printf("\nPhuong an Cai Ba lo 1 dung thuat toan THAM AN nhu
sau:\n");
	printf("|---|-----------------|---------|---------|---------|-----------|\n");
	printf("|STT|     Ten Do Vat   | T Luong | Gia Tri | Don Gia | Phuong an
|\n");
	printf("|---|-----------------|---------|---------|---------|-----------|\n");
	for(i=0;i<n;i++){
		printf("|%2d |%-18s|%9.2f|%9.2f|%9.2f|%6d     |\n",
		i+1,dsdv[i].TenDV,dsdv[i].TL,dsdv[i].GT,dsdv[i].DG,dsdv[i].PA);
		TongTL=TongTL+dsdv[i].PA * dsdv[i].TL;
		TongGT=TongGT+dsdv[i].PA * dsdv[i].GT;
	}
	printf("|---|-----------------|---------|---------|---------|-----------|\n");
	printf("Trong luong cua ba lo = %-9.2f\n",W);
	printf("Tong trong luong = %-9.2f\n",TongTL);
	printf("Tong gia tri = %-9.2f\n",TongGT);
}

void Greedy(DoVat *dsdv,int n, float W){
  int i;
  for(i=0; i<n; i++) {
     dsdv[i].PA = (W/dsdv[i].TL);
     W = W-dsdv[i].PA * dsdv[i].TL;
```

```
  }
}

int main(){
        int n;
        float W;
        DoVat *dsdv;

        dsdv=ReadFromFile(&W, &n);
    BubbleSort(dsdv,n);
        Greedy(dsdv,n,W);
        InDSDV(dsdv,n,W);

        free(dsdv);
        return 0;
}
```