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//Bai toan cai ba lo 1  
  
// Moi do vat co so luong khong han che  
  
// Giai bai toan bang QUY HOACH DONG
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#include <stdio.h>
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typedef struct {  
  
    char TenDV[20];  
  
    int TL, GT, PA;  
  
}DoVat;
```

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typedef int bang[50][100]; // Ba lo co trong luong toi da 99 va co toi da 50 do vat
```

```
DoVat * ReadFromFile(int *W, int *n){  
  
    FILE *f;  
  
    f=fopen("D://Balo.INP", "r");  
  
    fscanf(f, "%d", W); // Xac dinh trong luong Ba lo  
  
    DoVat *dsdv;  
  
    dsdv=(DoVat*)malloc(sizeof(DoVat));  
  
    int i=0;  
  
    while (!feof(f)){  
  
        fscanf(f, "%d%d",&dsdv[i].TL,&dsdv[i].GT);  
  
        fgets(&dsdv[i].TenDV,20,f);
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        dsdv[i].TenDV[strlen(dsdv[i].TenDV)-1]='\0';

        dsdv[i].PA=0;

        i++;

        dsdv=realloc(dsdv, sizeof(DoVat)*(i+1));

    }

    *n=i;

fclose(f);

return dsdv;

}

void InDSDV(DoVat *dsdv ,int n, int W){

    int i,TongTL=0, TongGT=0;

    printf("| ---|-----|-----|-----|-----|\n");

    printf("| %-3s|%-20s|%-9s|%-9s|%-9s|\n", "STT", "    Ten Do Vat    ", "T.
Luong", "Gia Tri", "P. An");

    printf("| ---|-----|-----|-----|-----|\n");

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

        printf("| %-3d",i+1);

        printf("| %-20s",dsdv[i].TenDV);

        printf("| %-9d",dsdv[i].TL);

        printf("| %-9d",dsdv[i].GT);

        printf("| %-9d|\n",dsdv[i].PA);

        TongTL=TongTL+dsdv[i].PA * dsdv[i].TL;

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        TongGT=TongGT+dsdv[i].PA * dsdv[i].GT;
    }

    printf(" |---|-----|-----|-----|\n");

    printf("Trong luong cua ba lo= %d\n",W);

    printf("Tong trong luong= %d, Tong gia tri= %d\n", TongTL, TongGT);

}

void TaoBang(DoVat *dsdv,int n,int W, bang F,bang X){

    int xk, yk, k;

    int FMax, XMax, V;

// Dien hàng đầu tiên của hai bang

    for(V= 0; V<=W; V++) {

        X[0][V] = V/dsdv[0].TL;

        F[0][V] = X[0][V] * dsdv[0].GT;

    }

// Dien các dòng còn lại

    for(k= 1; k<n; k++)

        for(V=0; V<=W; V++) {

            FMax = F[k-1][V] ;

            XMax = 0;

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        yk = V/dsdv[k].TL;
        for(xk = 1; xk<=yk; xk++)
            if(F[k-1][V-xk*dsv[k].TL]+xk*dsv[k].GT>FMax){
                FMax=F[k-1][V-xk*dsv[k].TL]+xk*dsv[k].GT;
                XMax= xk;
            }
        F[k][V] = FMax;
        X[k][V] = XMax;
    }

}

```

```

void InBang(int n, int W, bang F, bang X){
    int V, k;
    for(k=0; k<n; k++){
        for(V=0; V<=W; V++)
            printf("%4d%2d",F[k][V], X[k][V]);
        printf("\n");
    }
}

```

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void TraBang(DoVat *dsdv, int n, int W, bang X) {
    int k, V;

```

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V = W;

for(k= n-1; k>=0; k--) {

    dsdv[k].PA = X[k][V];

    V = V - X[k][V] * dsdv[k].TL;

}

}

```

```

int main(){

    int n, W;

    bang X,F;

    DoVat *dsdv;

    dsdv=ReadFromFile(&W, &n);

    TaoBang(dsdv,n,W,F,X);

    InBang(n,W,F,X);

    TraBang(dsdv,n,W,X);

    InDSDV(dsdv,n,W);

    free(dsdv);

    return 0;

}

```