1. **Container loading**

**Code:**

#include <stdio.h>

#include <stdbool.h>

#define MAX\_ITEMS 100

#define MAX\_CONTAINERS 100

// Function to load items into containers

int loadContainers(int items[], int n, int capacity) {

int containers[MAX\_CONTAINERS] = {0};

int containerCount = 0;

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

int j;

for (j = 0; j < containerCount; j++) {

if (containers[j] >= items[i]) {

containers[j] -= items[i];

break;

}

}

if (j == containerCount) {

containerCount++;

containers[j] = capacity - items[i];

}

}

return containerCount;

}

int main() {

int items[MAX\_ITEMS], n, capacity;

// Input the number of items

printf("Enter the number of items: ");

scanf("%d", &n);

// Input the dimensions of each item

printf("Enter the dimensions of each item:\n");

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

printf("Item %d: ", i + 1);

scanf("%d", &items[i]);

}

// Input the capacity of each container

printf("Enter the capacity of each container: ");

scanf("%d", &capacity);

// Compute the number of containers needed

int containersNeeded = loadContainers(items, n, capacity);

printf("Minimum number of containers needed: %d\n", containersNeeded);

return 0;

}

**Output:**

Enter the number of items: 5

Enter the dimensions of each item:

Item 1: 5

Item 2: 2

Item 3: 8

Item 4: 9

Item 5: 1

Enter the capacity of each container: 16

Minimum number of containers needed: 2

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Process exited after 12.57 seconds with return value 0

Press any key to continue . . .

