# HW12 – Advanced Uses of Pointers

Due on Dec. 13th, 6:00pm

1. Modify "inventory.c" program (HW11) so that the array of **part** structure is dynamically allocated and later reallocated when it fills up. Use **malloc** initially to allocate enough space for an array of 10 part structures. When the array has no more room for new parts, use **realloc** to double its size. Repeat the doubling step each time the array becomes full. When quit the program, you must **free** the allocated spaces properly.

When submitting the assignment, enter the following examples consecutively, and attach the result. Bold text indicates input.

| | |
|---|---|
| #1 | **Enter operation code: i**<br>**Enter part number: 528**<br>**Enter part name: Disk drive**<br>Enter quantity on hand: 10 |
| #2 | **Enter operation code: s**<br>**Enter part number: 528**<br>Part name: Disk drive<br>Quantity on hand: 10 |
| #3 | **Enter operation code: s**<br>**Enter part number: 1004**<br>Part not found. |
| #4 | **Enter operation code: i**<br>**Enter part number: 914**<br>**Enter part name: Printer cable**<br>**Enter quantity on hand: 5** |
| #5 | **Enter operation code: u**<br>**Enter part number: 528**<br>**Enter change in quantity on hand: -2** |
| #6 | **Enter operation code: p**<br>Part Number     Part Name     Quantity on Hand<br>528     Disk drive     8<br>914     Printer cable     5 |
| #7 | **Enter operation code: q** |

2. Modify "inventory.c" program above (Problem 1) so that the *name* and *category* of each **part** is dynamically allocated and stored. When quit the program, you must **free** the allocated spaces properly.

When submitting the assignment, enter the following examples consecutively, and attach the result. Bold text indicates input.

| | |
|---|---|
| #1 | **Enter operation code: i**<br>**Enter part number: 528**<br>**Enter part name: Disk drive**<br>**Enter category name: Computer**<br>Enter quantity on hand: 10 |
| #2 | **Enter operation code: s**<br>**Enter part number: 528**<br>Part name: Disk drive<br>Category name: Computer<br>Quantity on hand: 10 |
| #3 | **Enter operation code: p**<br>Part Number     Part Name     Category Name     Quantity on Hand<br>528     Disk drive     Computer     10 |
| #4 | **Enter operation code: q** |

3. Modify "inventory.c" program above (Problem 2) by adding a new function **change** that allows the user to change the name of a part. Given a part number, change the name of the part:

change:          Given a part number, change the name of the part from the database. Use **realloc** to reduce/increase the size of the array to store the name of the part.

| #1 | **Enter operation code: i** <br> **Enter part number: 528** <br> **Enter part name: Disk drive** <br> **Enter category name: Computer** <br> **Enter quantity on hand: 10** | | | |
|---|---|---|---|---|
| #2 | **Enter operation code: i** <br> **Enter part number: 914** <br> **Enter part name: Printer cable** <br> **Enter category name: Printer** <br> **Enter quantity on hand: 5** | | | |
| #3 | **Enter operation code: p** | | | |
| | Part Number | Part Name | Category Name | Quantity on Hand |
| | 528 | Disk drive | Computer | 10 |
| | 914 | Printer cable | Printer | 5 |
| #4 | **Enter operation code: c** <br> **Enter part number: 914** <br> **Enter the new Part Name: Printer ink** | | | |
| #3 | **Enter operation code: p** | | | |
| | Part Number | Part Name | Category Name | Quantity on Hand |
| | 528 | Disk drive | Computer | 10 |
| | 914 | Printer ink | Printer | 5 |