

CS24 W19

h03: Chapter 3, section 3.1, Chapter 4, 4.1 - 4.5

ready?	assigned	due	points
true	Wed 01/23 02:00PM	Mon 01/28 09:00AM	100

You may collaborate on this homework with AT MOST one person, an optional "homework buddy".

MAY ONLY BE TURNED IN IN THE LECTURE/LAB LISTED ABOVE AS THE DUE DATE, OR IF APPLICABLE, SUBMITTED ON GRADESCOPE. There is NO MAKEUP for missed assignments; in place of that, we drop the lowest scores (if you have zeros, those are the lowest scores.)

Complete your reading of Chapter 3, section 3.1, Chapter 4, 4.1 - 4.5 (If you don't have a copy of the textbook yet, there is one on reserve at the library under "COMP000-STAFF - Permanent Reserve").

Please:

int *p, *q; int x; p = &x		 No Staples. No Paperclips. No folded down corners.
q = new int;	50, 6C	
p = q; cout << *p << ", " << *q << endl; *p = 30; *a = 40;	60, 60	
cout << *p << ", " << *q << endl; delete p;	40,40	December 1 annual 1

2. (5 pts) Suppose that we added the line delete q; after the last line of the code in the previous question, how would the behavior of the program change?

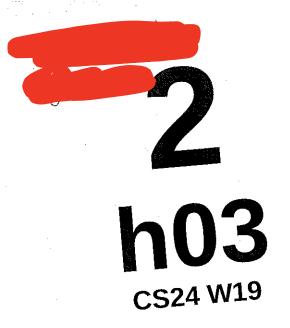
from 15 freed up twice.

3. (10 pts) On page 98 (Chapter 3), the author talks about value semantics, which specifies different ways of copying the value of objects of a class to other objects of the same class. Using examples write two ways in which this can be done for the point class covered in lecture. You can find the code for that class here: https://github.com/ucsb-cs24-w19-mirza/cs24-w19-lectures/tree/master/lec-04

Also, Option 3: point p; p=p1; Option 1: point p(pl.get_x(), pl.get-y()); Option 2: point p; poshift (pl.get x(), pl.get-y());

4. Read the code provided in pointCloud.h in point.h in this repo that describes a point and a pointCloud: https://github.com/ucsb-cs24- w18/cs24-h03. Answer the following questions about the provided code i. (5 pts) Suppose the parametrized constructor was implemented as below, what is the syntax/logic error. Provide a correct implementation.

```
ii. (10 pts) Implement the overloaded copy constructor
point woud: point would (const point would other) {
     this > numPoints = other. numPoints;
     this > eaparity = other capacity;
      this = cloud= new point [ capacity ];
      for (mti=0, 1 enumbounts; i++)[
        * (this ocloud + i) = other-scloud [i];
```



iii. (20 pts) Implement the overloaded assignment operator

```
Lord pointCloud: operator= (const pointClouds other) [
      Leter [Ithis > cloud;
      this 3 miniPoints = other mentionits;
      this - capacity = other. capacity;
      his & cloud = new point [capacity];
       for (mt 1=0; 1< munPoints; it) this > cloud[i]= other > cloud[i];
```

iv. (20 pts) Implement the destructor

```
point and: a point (loud () }
    Lebette [] this schoud;
```

v. (20 pts) Write (a), (b), (c), (d) or "none" against each of the following statements to indicate which of the following is invoked in each ca (a) parameterized constructor, (b) copy constructor, (c) assignment operator, (d) destructor.

```
void whatsThePoint(){
         pointCloud *p = new pointCloud;
          for (int i = 0; i < 20; i++) {
p->insert(point(i, 10*i)); \rightarrow (a)
          pointCloud q(*p); (b)
          pointCloud w; (A)
           w = y,
delete p; (d)
```

Syntax error: member van capacity is not initialized logic error: member ranable numbers is not initialized

Correct implementation:

point(land: point(land (int cap=10)))

capacity = cap;

humpoints = 0;

cloud = how point [rapacity];