CSCI 515, Week 11 lab: Pointers & Classes
(100 points)

1. (10 points) Which of the following are legal statements and which are illegal statements? Explain your answer

```
double* p; - legal - P is a pointer variable of type double
int * q;  - legal - q is a pointer variable of type integer
char *c; - legal - C is a pointer variable of type character
double* r, s; - legal - R is a pointer variable of type double
                      - S is a normal variable of type double
```

2. (5 point) In the above problem, which of the variables mentioned are pointers?

P, q, C, r are pointers

3. (15 points) Given the following code:

```
int *ptr1;
int *ptr2;
double *ptr3;
int x;
```

Which of the following are valid statements? If they are invalid, explain why.

a. ptr1 = ptr2;
b. ptr1 = ptr3;
c. ptr2 = &x;
d. ptr3 = 5.7; - Invalid, this is invalid since ptr3 stores the address of another variable so an address should be assigned to ptr3 not an integer.
e. *ptr1 = 22;
f. x = ptr3; - Invalid, this is invalid since x is an integer it should not be assigned the ptr3 pointer which holds the address of an integer.
g. x = ptr2; - Invalid, this is invalid since x is an integer it should not be assigned the ptr2 pointer which holds the address of an integer.
h. x = &ptr1; - Invalid, this is invalid since x is an integer it should not be assigned the address of the ptr1 pointer which holds the address of an integer.

4. (20 points)What is the output of the following C++ code?

```
int *a;
int *b;
int c, d=5;
a = &d;
c = 7;
```

```
b = &c;
cout <<  *a + *b << endl;
```

The output = 12

5. (15 points) Where in the following code should a delete statement be put? Explain why.

```
int *p = new int;                                   //line 1
int *q = new int;                                   //line 2
*p = 32;                                            //line 3
*q = 20;                                            //lie 4
cout << 2 * (*p) << " " << (*q – 5) << endl;        //line 5
q = p;                                              //line 6
*p = 10;                                            //line 7
cout << *p << " " << *q << endl;                    //line 8
p = new int;                                        //line 9
*p = 12;                                            //line 10
*q = 62;                                            //line 11
cout << *p << " " << *q << endl;                    //line 12
```

delete q;

this delete statement will help by deleting the data previously stored in q. Allowing it to accept a new variable assignment.

A delete statement should be put here.

6. (35 points) Consider the code below:

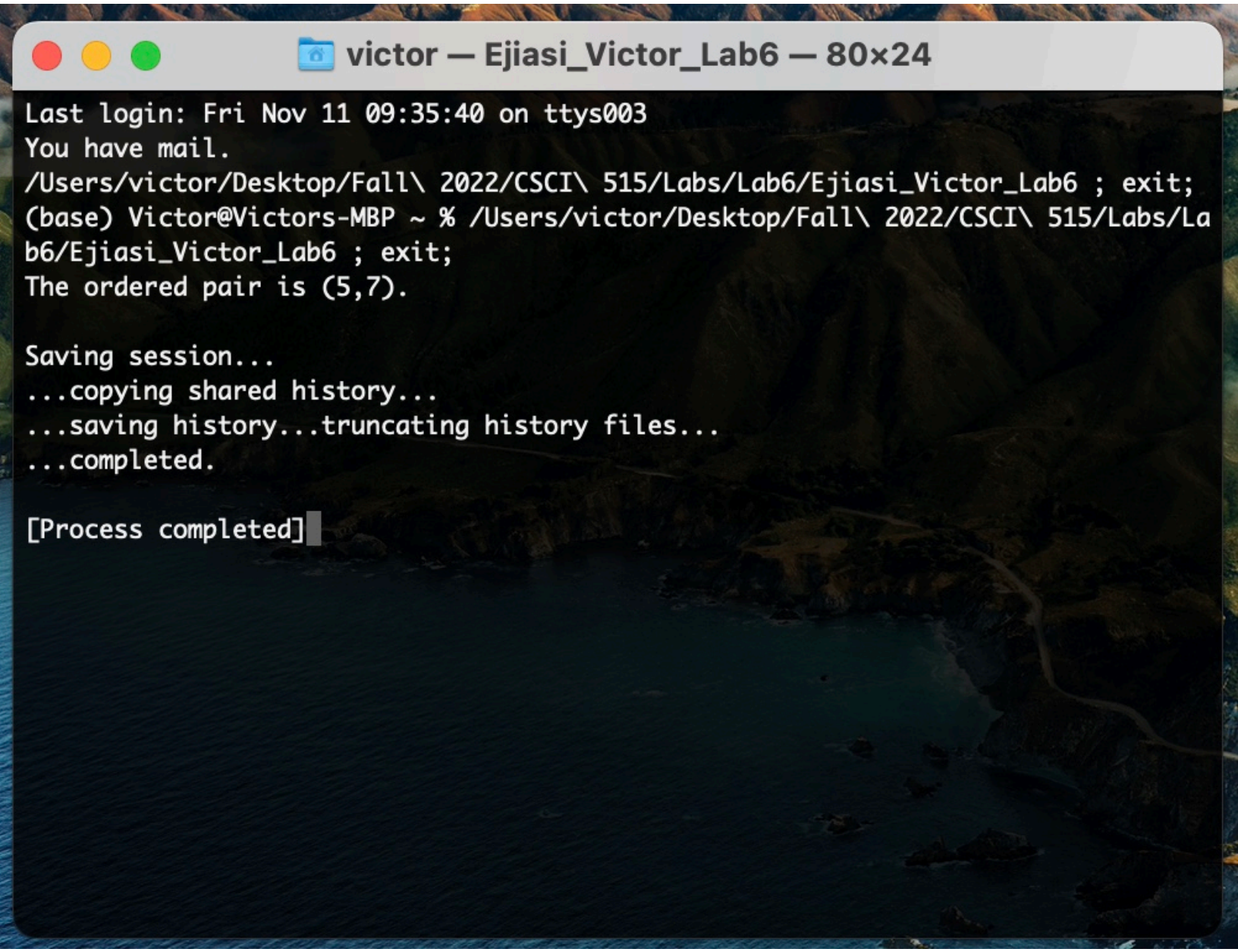
```
class orderedPair
{
    public:
        void setX(double a);
        void setY(double b);
        double getX();
        double getY();
        void print();
                // Prints the ordered pair (x, y)
     private:
        double x;
        double y;
};

//line d

int main()
{
        orderedPair *pairPtr;
        pairPtr = new orderedPair;
        //line a
        //line b
```

```
        //line c
```

a. Write the missing code below line d to provide the definition of functions being defined as the members of the class orderedPair
b. Write the missing code in line a to assign 5 to the x-coordinate of the ordered pair.
c. Write the missing code in line b to assign 7 to the y-coordinate of the ordered pair.
d. Write the missing code in line c to print out the ordered pair.

Submission:

- The program (C++ source code and screenshot of the output in this *.doc(x) file), and *.cpp file


victor — Ejiasi_Victor_Lab6 — 80×24
Last login: Fri Nov 11 09:35:40 on ttys003
You have mail.
/Users/victor/Desktop/Fall\ 2022/CSCI\ 515/Labs/Lab6/Ejiasi_Victor_Lab6 ; exit;
(base) Victor@Victors-MBP ~ % /Users/victor/Desktop/Fall\ 2022/CSCI\ 515/Labs/La
b6/Ejiasi_Victor_Lab6 ; exit;
The ordered pair is (5,7).
Saving session...
...copying shared history...
...saving history...truncating history files...
...completed.
[Process completed]