Take Test: Final Exam

Test Information

Description

You are agreeing to abide by the following, in accordance with the ODU Honor Code:

- All answers submitted must be your own work. You may not receive aid or information from anyone other than the instructor.
- Printing or otherwise capturing any portion of this exam is forbidden.
- You may not provide information to other students during the exam. You may not communicate with other students about the contents of the exam until the answer key has been released (which may be delayed if the instructor were to grant extensions due to illness, etc.)

During the exam, you may refer to any notes or books that you have brought with you. You may use the web browser to visit the course web site (directly or through Blackboard) and any materials I have provided to you (e.g., Example Code).

If you find yourself working for a long time on an essay-style question, please use the Save button every few minutes to guard against losing your work due to web browser timeouts or temporarily dropped network connections.

You may not visit other web sites, or make use of other electronic devices during the exam. You have 3 hours (180 minutes) to complete the exam.

Instructions	
Timed Test	This test has a time limit of 3 hours. You will be notified when time expires, and you may continue or submit. Warnings appear when **half the time**, **5 minutes**, **1 minute**, and **30 seconds** remain.
Multiple	Not allowed. This test can only be taken once.

Remaining Time: 1 hour, 03 minutes, 50 seconds.

Question Completion Status:

QUESTION 1

12 points Saved

As part of a system for aiding student library research, a program is being developed to maintain a bibliography as a student prepares a term paper. You are designing a “Bibliography” class. In essence, a “Bibliography” is a container of “References” (books ,papers, etc.).

Assume that someone else has the responsibility of designing the “Reference” class. The most essential operations on a Bibliography are to add Reference objects identified by a title (a string), to fetch a Reference previously associated with a title, and to access all references in the bibliography.

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

```
{
public:
  Bibliography();
  void put (string title, Reference h);
  Reference get (string title);
private:

  // a data structure will be chosen later
};
```

Modify this proposal to bring it in line with appropriate C++ style for robust and re-usable ADTs.

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

Arial 3 (12pt)

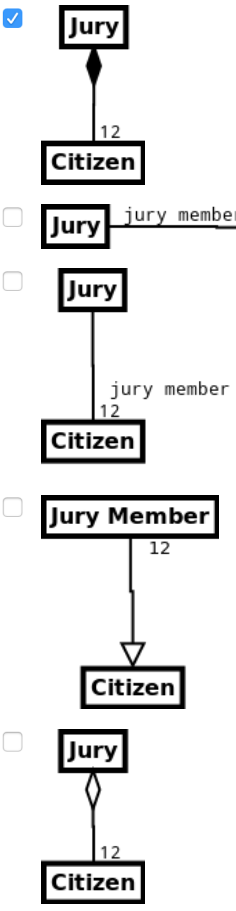
```
class Bibliography
{
public:
    Bibliography();

    /**
     * Copy Constructor
     */
    Bibliography(const Bibliography & other);

    /**
     * Destructor
```

Path: p.p1 » span.-space Words:183

QUESTION 2 **5 points** Saved

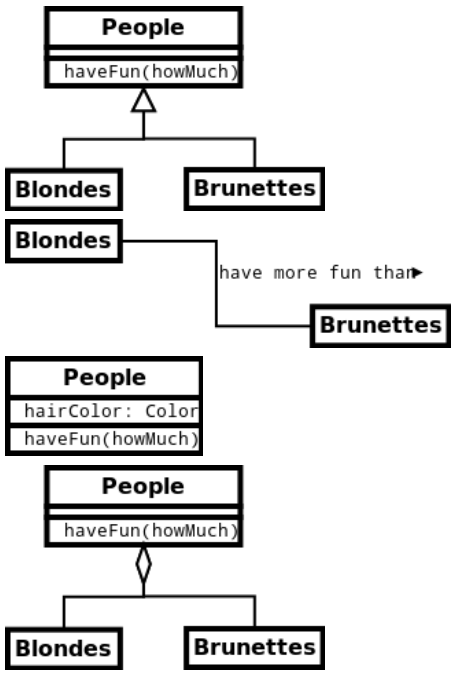
Which of the following diagrams makes an appropriate statement related to

"A jury is composed of twelve citizens."



QUESTION 3 **5 points** Saved

Click Save and Submit to save and submit. Click Save All Answers to save all answers.



QUESTION 4 **6 points** Saved

Describe two techniques for validating a domain model.
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

Arial 3 (12pt)

Techniques for validating a domain model:

1. Build test cases to assess model's quality

2. Create a list of requirements that the model should have and evaluate one by one

whether the domain model satisfies them.

Path: p Words:36

QUESTION 5 **5 points** Saved

Consider the following code:

```
// Issue a new edition of a Book .
 Book b = catalog[oldEdition];
 ++b.editionNumber;
 catalog[catalogSize] = newEdition;
  ++catalogSize;
```

The programmers who first encountered this code fragment weren't sure if it was in C++ or Java.

In fact, with the addition of some appropriate declarations, it would probably compile correctly in either language.

Which language is it? Explain your answer.
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

In c++, code `Book b = catalog[oldEdition]` will copy by value, in java, it will copy by reference.

Thus, in java, it will result in two references that both reference the same book . There is no such problem with c++.

Path: p » span Words:56

QUESTION 6

12 points Saved

As part of an office automation suite, you are designing a "Binder" class to emulate a 3-ring binder. In essence, a Binder is a container that maintains a set of "Documents" in a linear order.

Assume that someone else has the responsibility of designing the "Document" class. The Document class will actually be a base class for several different kinds of documents, such as letters, articles, slide sets, etc.

The most essential operations on a Binder are to add a Document object at a specific position (given as an integer) or to fetch a Document previously inserted into such a position.

A junior programmer has proposed the following interface for the binders.

```
public class Binder {
  Binder(int maxDocuments) {...}

  void put (int position, Document doc) {...}
  Document get (int position) {...}
  int numberOfDocuments() {...}
  // A data structure will be selected later
};
```


In your best Java style, rewrite this proposal to conform to appropriate Java standards for robust and re-usable classes.

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).


```
    // ...
  }

  public void put (int position, Document doc) {
    // ...
  }
  public Document get (int position) {
    // ...
  }

  public int numberOfDocuments() {
    // ...
  }
```

Path: p Words:79

QUESTION 7

5 points Saved

In writing a typical Java GUI, we often have to provide certain functions for which we will never, anywhere in our code, write a function call.

What are the most common examples of such functions?

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

The most common examples are to add ActionListener to GUI objects such as button.

Following code is an example.

```
JButton button=new JButton("Example");
```

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

QUESTION 8

6 points Saved

Consider the following use case for for a Credit Reporting Agency (CRA):

1. A customer applies for a new mortgage with a bank.
2. The bank sends a query to the CRA asking for the customer's credit rating.
3. The CRA records the fact that a credit inquiry was made regarding that customer in the customer's credit history, stored at the CRA.
4. If more than K (a secret constant that varies from one CRA to another) credit inquiries have been made about that customer within a month, the customer's rating is decreased, with the new value recorded in the credit history.
5. The CRA sends the customer's credit rating (from the customer's credit history) to the bank.
6. The bank informs the customer of his credit rating.

Assume, for the sake of discussion, that the step numbers denote time (e.g., the query is sent at time t=2 seconds).

Which of the following statements are likely to be true for a sequence diagram portraying this use case?

- [x] There is a solid arrow labelled "requestCreditRating(customer)" at time t=2 from the Bank timeline to the CRA timeline.
- [x] There is a solid arrow labelled "recordInquiry()" at time t=3 from the CRA timeline to the Customer timeline.
- [x] There is a solid arrow labelled "sendCreditRating(rating)" at time t=5 from the CRA timeline to the Bank timeline.
- [x] There is an anchor or an Opt frame near the middle of the time lines.
- [ ] There is an activation box on the CRA timeline from time t=2 to time t=5.
- [ ] There is an activation box on the Bank timeline from time t=2 to time t=6

Click Save and Submit to save and submit. Click Save All Answers to save all answers.