CS 2340 Spring 2016 Exam 1

Lixin Wang

TOTAL POINTS

53 / 56

QUESTION 1

1 Identify Objects (4 / 5)

- 0 Correct
- **1 One bad object (implementation or not noun)**
- 2 2 bad objects
- 3 3 bad objects
- 4 4 bad objects
- 5 Totally wrong no answer

QUESTION 2

2 Domain Model (10 / 12)

- 0 Correct
- 2 Classes not in boxes or no compartments
- 2 Incorrect association
- 2 normal association missing label
- **2 missing or incorrect attributes**
- 2 missing or incorrect stereotypes
- 2 missing or incorrect cardinality. Empty are assumed to be 1.
- 12 Not a Domain Model

QUESTION 3

3 Use Case (6 / 6)

- 0 **Correct**
- 3 one use case not in verb-direct object, or is not a valid use case for system, or is missing completely
- 1.5 One use case is stated properly, but not a valid use case, or is a valid use case but not stated properly
- 6 both entries are incorrect

QUESTION 4

4 Context Diagram (7 / 7)

- 0 **Correct**
- 2 Missing external actor (TI, Mechanic, Manager)
- 7 Completely wrong, no answer or not a context diagram
- 4 Missing two actors
- 6 Missing three actors
- 1 System box missing (use case ovals are optional)
- 0 The system doesn't really interact at all with the airplane as described, although I won't count this wrong since students may be thinking of some kind of on-board diagnostic on aircraft that we would hook up to.
- 1 did not use stick figure for actor
- 1 General syntax errors in diagram

QUESTION 5

5 Robustness Diagram (10 / 10)

- 0 **Correct**
- 10 No answer or not a robustness diagram
- 2 External actor missing (may be any since this was unspecified)
- 2 Incorrect boundary class
- 2 Incorrect controller class
- 2 Incorrect entity class
- 2 Failed to obey constraints : Actor can only talk to boundary, entity only talk to controller, controller may interact with controller, boundary or entity, but not actor.
- 2 Incorrect Entity Symbol
- 2 Incorrect Controller Symbol
- 2 Incorrect Boundary Symbol

QUESTION 6

6 Scrum (6 / 6)

- 0 **Correct**
- 6 Answer incorrect or blank
- 3 Product Backlog information totally wrong
- 3 Sprint Backlog information totally wrong

- **3** Correctly mentioned that product backlog contains all tasks for entire project, and Sprint backlog contains tasks just for next few weeks, but failed to describe any other differences. Correctly mentioned some differences, but failed to cover timeframes for two backlogs.
- **1.5** Failed to mention timeframes for one answer or there is a minor problem with description

QUESTION 7

7 Matching **(10 / 10)**

- **0 All Correct**
- **10** All incorrect or no answer
- **1** H
- **1** E
- **1** J
- **1** A
- **1** C
- **1** I
- **1** D
- **1** F
- **1** B
- **1** G

gradescope

CS2340 Exam 1 Summer 2015 **Exam Number:** 277

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I certify that I have complied with the Georgia Institute of Technology honor code during this examination. I have neither received nor given help during the exam. NO CELL PHONES, iPODS or other devices may be used during the exam. Please turn off all electronic devices that will make a noise during the exam. I have accessed only the single sheet of paper authorized for use during the exam.

Signed: Lixin Wang

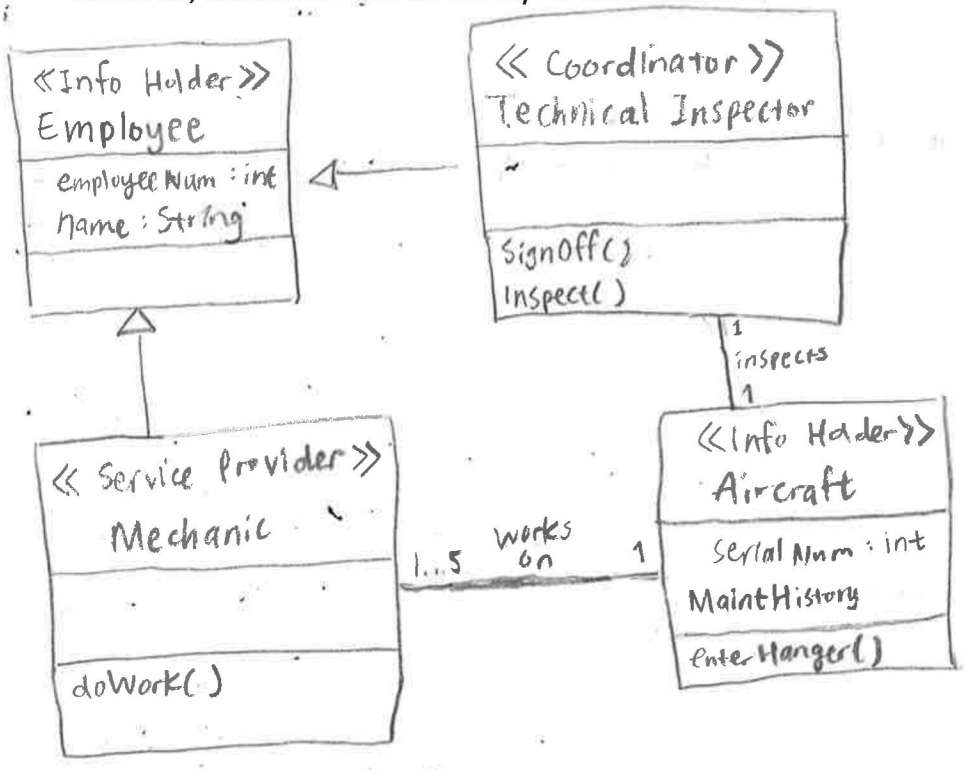
The following textual description covers questions 1 – 5.

An airline company is creating a new application to handle maintenance and has requested your help in designing it. The company has several employees and aircraft. The employees are of two types: Technical Inspectors (TI) and Mechanics. Each employee has an employee number and name. Mechanics do the work while TI's inspect and sign-off that the work is done correctly. Each aircraft has a serial number and a set of records that forms its maintenance history. Each record maintains a date and description of the work performed. The record also keeps track of the TI who signed off on the work. When the aircraft enters the hangar, a work record is opened, marked as OPEN and from 1-5 mechanics are assigned to the job along with 1 TI. When the work is done, the TI signs off on the record, and it is marked CLOSED. Managers search for things like the number of open work records on an aircraft, the number of aircraft with OPEN work records, what aircraft a mechanic has worked on or the work records assigned to a particular TI.

1. Given the description above, list 5 candidate objects from the description above.

1. Mechanic
2. Aircraft
3. Record
4. Manager

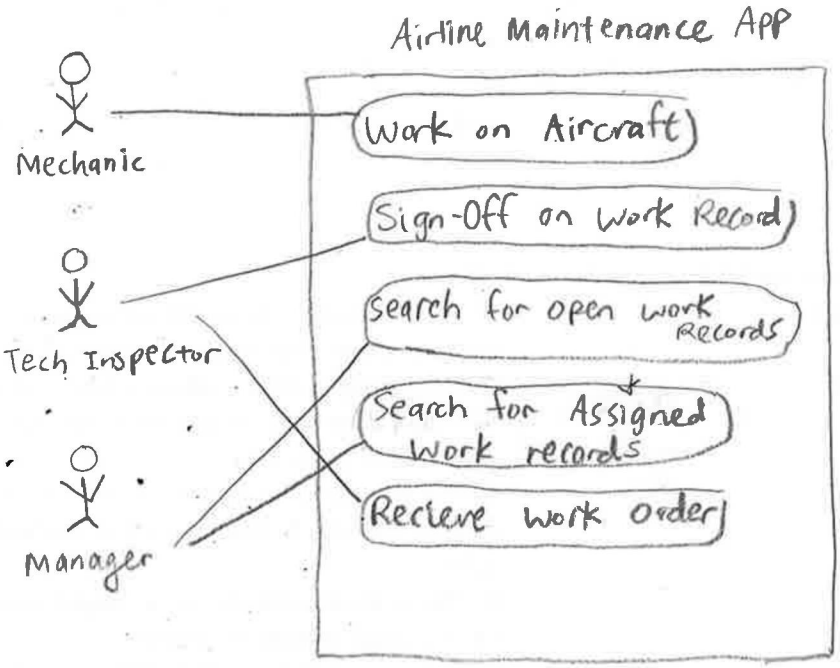
2. Draw a part of the domain model which has 3 classes. Be sure and show the stereotypes, attributes, associations and cardinality for those 3 classes.



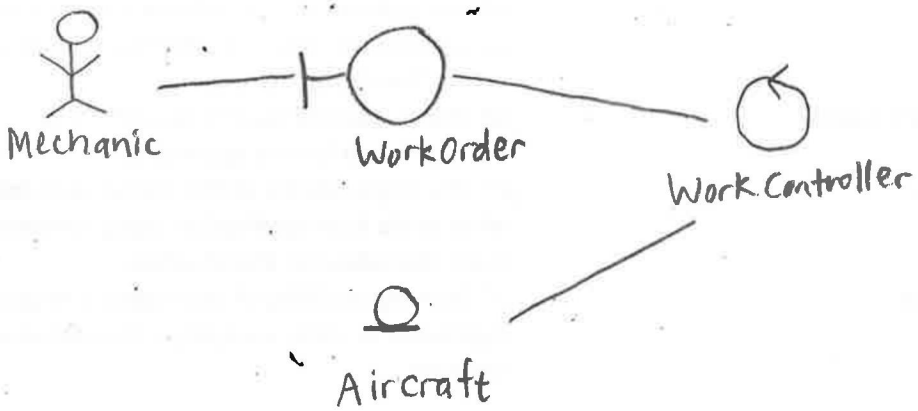
3. List the titles-only of two use cases that would apply to this system description.

1. Sign-off on work record
2. Search for open work records

4. Draw a context diagram of the described system.



5. Assume that you have a UI screen for entering a work order, the system then processes the work order information and uses the following domain objects: Mechanic, WorkOrder, Aircraft. Draw a Robustness diagram using this information.



6. Briefly explain the difference between the Sprint backlog and the Product Backlog.

The product backlog shows prioritized tasks or features of the project and how many hours need to be completed or are left for those tasks. The sprint backlog focuses on each group member's individual estimate of how many hours they have to go on and is divided into "sprints" or milestones of the project which are typically ~1 week long. In a sprint, each person is assigned a specific task to work on.

7. Matching. Match the single best answer for each choice.

H Information Holder
E Service Provider
J Interfacer
A Structurer
C Coordinator
I Controller
D Single Responsibility Principle
F Information Expert
B Singleton
G Monostate

A. The responsibility of this object is to organize other objects for the application.
B. This design pattern allows a single instance of a class to be globally available through the getInstance() method.
C. The responsibility of this object is to control other objects by following a set of standard rules.
D. This principle states that an object should have a single reason to change.
E. The responsibility of this object is to do things for other objects in the application.
F. This principle states that functions should be assigned to the class that has the data necessary to carry out those functions.
G. This design pattern allows a single instance of class data to be available everywhere in the application by making its internal data all class rather than instance data.
H. The responsibility of this object is to maintain data for the application.
I. The responsibility of this object is to decide what to do in an application using dynamic rules that adapt to the situation.
J. The responsibility of this object is to provide a gateway to other components or external systems.