Homework 3 Trends

Oct 23, 2022

Question 1.a

- What went well?

  - A common scenario for borrowing items was provided in the problem statement which was expected to be used to identify actors and use cases.
  - Majority of the students correctly identified three out of the four main actors – Patrons, the SRC Machine, and the Library Online System.
  - Majority of the students correctly identified main use cases to borrow an Item.

- Common mistakes:

  - About one third of the students did not provide any definitions/explanations for the actors and the use cases.
  - An actor refers to a role played, for example not a specific person or specific item to be borrowed. Few students mentioned “John” as an actor (whereas John was a specific person playing a role of a patron of a library)
  - Most of the students did not identify Items as an actor.
  - Some students have identified Students, Staff, and Faculty as different actors but, they cannot be distinguished if their borrowing rights are the same. They have the same role in terms of borrowing items. However, if for example, the student, staff, and faculty are given different time periods to keep their borrowed items, then it is meaningful to have three different actors. Some students missed this part when applying generalizations between actors.
  - Some students' use cases were not relevant to borrowing items for the description provided for the problem.

Question 1.b

- What went well?

  - Part (b) referred to a case not included in the common scenario. This is like the extension provided for the common scenario." Thus, it was referring to the items which can not be checked out or are "reserved for some reason" such as maps, old books, books that are reserved for classes, etc.
  - For this problem statement, assume that library resources **such as printers or computers do not fall into any category of items to be checked out**.
  - Many students understood this concept and provided appropriate use cases (which could be extensions to a common scenario).

- Common mistakes:

  - A large number of students have referred to use cases that are outside of the problem description, such as printing, scanning, and using computers.
  - A few students did not provide an explanation for the use cases mentioned here.
  - A few students did not provide the use cases for items that are reserved for some reason as items cannot be checked out.

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Question 1.c

- What went well?

  - Many students correctly understood the concept of a use-case diagram and were able to represent the identified use cases with necessary notations. Many could correctly associate the use cases with a valid actor.
  - The include/extend relationships and generalization relationships should be correctly identified and represented with the use cases. Many students were able to understand and apply these concepts.

- Common mistakes:

  - For some students, the arrow for the include/extend relationship was pointing in the wrong direction.
  - The actors and use cases in the use-case diagram should be those that are defined in part (a). The use-case diagram should not have any elements that are not defined. A couple of the students had discrepancies in use cases defined in part (a) and part (b). Either they added new use cases in the diagram or did not show the use cases mentioned in parts (a) and (b).

Question 2.a

- What went well?

  - Many students have answered this question correctly. They have identified the correct set of categories, their respective properties, and values. They even provided the categories in the format mentioned in course notes (though it was not mandatory).
  - Many students provided an explanation along with the categories identified.

- Common mistakes:

  - A few students have provided the category but did not provide any property along with it. The properties should be individually defined for category.
  - Many students didn't provide values for the identified properties for category. The values were important to explain the property provided for a category.
  - A few students provided the category along with properties and values but there was no explanation provided with it.
  - It is important to explain the category and what makes it fall under "classical categorization".
  - In some cases, the explanation provided was inconsistent with a category and the properties defined.
  - Classical categorization identifies the classes and objects according to the relevant properties for the problem domain of interest.

  We have a problem domain of **the library system**. The following are some examples for the identified objects and classes.

  Book:

  Property: Book has a Barcode or not; values: yes and no
  Property: A given book can be borrowed or not by a staff member; values: yes and no.

Property: A given book can be burrowed or not by SCR machines; values: yes and no.
Property: A book is available or not; values: yes and no

The borrowed book has further properties such as:
Property: Date when the book was issued, how the book was issued either by SCR machines or by John Dow values: validity of the book to be borrowed based on the due date.
Property: The penalty applied to a book borrowed after crossing a due date; values: an int or double based on the calculation of penalty per day

Patron:
Property: A patron can be a student; values: yes and no
Property: A patron can be a teacher; values: yes and no
Property: A patron can be a Staff; values: yes and no

Such categorization of problem domains based on property or values helps us to keep track of the books issued to the Students, Teachers, etc. It also helps us to calculate the penalty if a certain book has crossed its due date. It could also tell us whether a book can be checked out or not.

Question 2.b

- What went well?

  - Many students have answered it correctly. They have identified the correct set of properties, values, and categories that can be classified under conceptual clustering. The identified value for some property can have indefinite boundaries, and thus, the answers seemed meaningful.

- Common mistakes:

  - A few submissions didn't identify the correct choice of categories.
  - In a couple of submissions, either the properties were not clearly identified or the values for these properties were not explicitly defined.
  - The identified category and its properties should be consistent. Values for the identified category should not be having clearly defined boundaries. Few answers had such inconsistencies.
  - It was expected to describe the values for the properties of the objects that do not have clearly defined boundaries. Many students provided the properties and category but values were not provided which will explain how the category falls under conceptual clustering.
  - The explanation with respect to identified properties and values was important to understand how the properties do not have definite boundaries and in some cases, the explanation was not meaningful in terms of Conceptual Clustering
  - A few answers also had an inconsistent explanation of the identified properties and values.
  - A small percentage of students did not identify the categories with respect to a problem statement.