

Midterm Exam

St. Name: Sass , Kevin
 Last Name, First Name

Important Notes:

- There are 6 questions in the exam paper
- Please **type** your answers (**No hand-writing will be accepted**) below every question, and please make sure you distribute your time wisely to cover all questions.
- The Exam is an individual-work not team-work; please do NOT communicate the exam content in any shape or form to anyone except myself
- Your midterm exam is due on D2L as a SINGLE PDF document on Friday, 4/27/18, by 11:55pm.

Q1. (5 points) What are the different artifacts used to capture requirements in the unified process?.

- Use Case Model
- Vision
- Supplementary Specification
- Glossary

Q2. (5 points) Explain the difference between requirements specification and the analysis model?

Requirements Specification is a description of a software system to be developed. It lays out functional and non-functional requirements and may include a set of use cases that describe user interactions that the software must provide. Software requirements specification establishes the basis for an agreement between customers and contractors or suppliers (in market-driven projects, these roles may be played by the marketing and development divisions) on what the software product is to do as well as what it is not expected to do.

Analysis Model: Identification and description of activities in an organization, and evaluation of their impact on its operations. Activity analysis determines what activities are executed, how many people perform the activities, how much time they spend on them, how much and which resources are consumed, what operational data best reflects the performance of activities, and of what value the activities are to the organization. This analysis is accomplished through direct observation, interviews, questionnaires, and review of the work records. Examples: job analysis, performance analysis and task analysis.

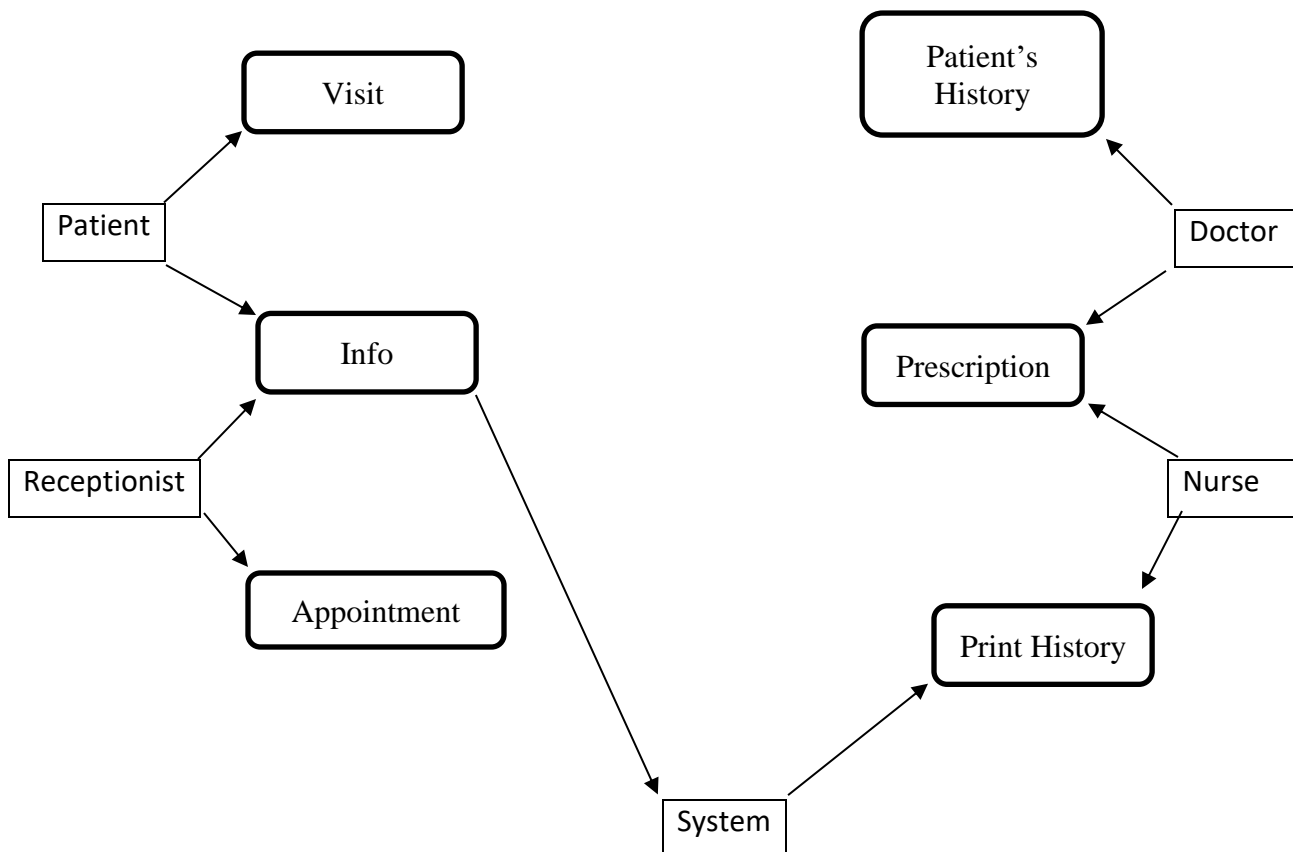
Q3. (5 points) Explain the difference between the UML USE-CASE diagram and UML system diagram.

Answer: The system diagram shows the outside users, while the use-case diagram is more elaborate and also shows the connections between use cases and actors.

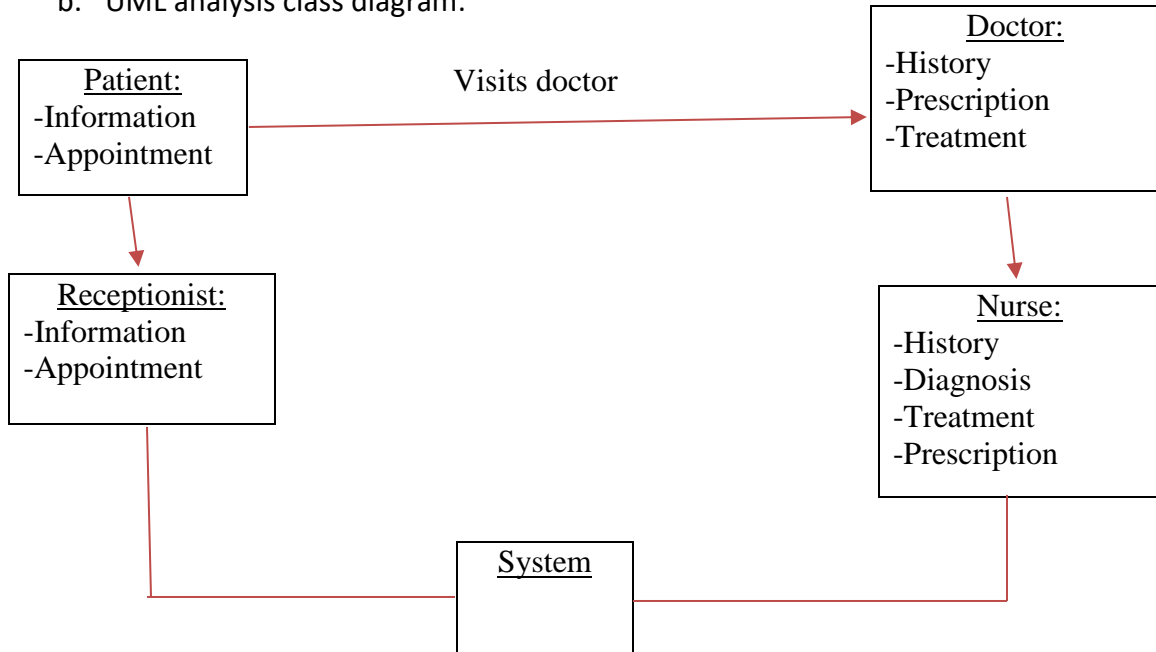
Q4. (35 points) A patient record and scheduling system in a doctor's office is used by the receptionists, nurses, and doctors. The receptionists use the system to enter new patient information when first-time patients visit the doctor. They also schedule all appointments. The nurses use the system to keep track of the results of each visit including diagnosis and medications. For each visit, free form text fields are used captures information on diagnosis and treatment. Multiple medications may be prescribed during each visit. The nurses can also access the information to print out a history of patient visits. The doctors primarily use the system to view patient history. The doctors may enter some patient treatment information and prescriptions occasionally, but most frequently they let the nurses enter this information. -- Each patient is assigned to a family. The head of family is responsible for the person with the primary medical coverage. Information about doctors is maintained since a family has a primary care physician, but different doctors may be the ones seeing the patient during the visit.

- Provide the complete **UML use-case diagram**
- Provide **UML analysis class diagram**

a. UML use-case diagram:



b. UML analysis class diagram:



Q5. (30 points) Consider the following high-level description for an online application for the SportsDepot store:



1. Store offers the following types of Shoes : Basketball Shoes, Running Shoes, Casual Shoes
2. Store offers the following Clothing : T-Shirt, Shorts, Jersey, Jacket
3. Store offers the following Accessories : Backpack, Duffle Bags, Gym Sack, Socks, Hat, Sunglasses

4. The customer shall be able to create an order and the customer shall be able to cancel an order.
5. The customer shall be able to return to the store the purchased goods.
6. Salesman shall be able to add new products to the store homepage and create or cancel orders on behalf of the customer.
7. The store manager can create store coupons that are applicable to any item purchased from the store.

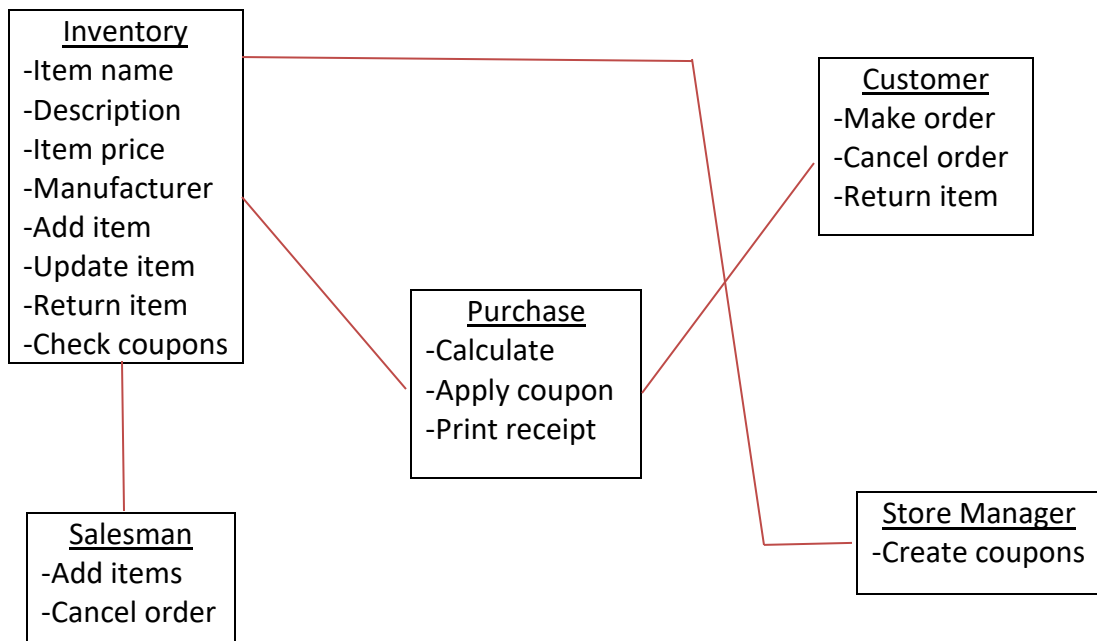
Based on the requirements/description listed above, provide answers for the following questions:

1. Provide the list of the **conceptual classes**
2. Draw the **UML Analysis class diagram**

1. List of Conceptual Classes:

- Salesman
- Customer
- Item
- Sale

2. UML Analysis Class Diagram:



Q6. (20 points) Given the following narrative for Bambino's Pizzeria,

1. List the **actors** that should be used in the use-case diagram

2. Create the UML Activity Diagram for placing a pizza order for delivery.

For its chain of fast food outlets, Bambino's Pizzeria has recently installed a system to speed up deliveries. In each of its stores, Bambino's has three or four PCs connected to incoming phone lines. When a customer calls in an order to have pizza delivered, an employee answers and Caller ID checks the phone number against a data store containing past phone orders. If the order is for a repeat customer, the system matches the number with the customer database and displays the customer record on the screen. For first-time customers, the employee verifies the caller's name and address, and creates a record in the customer database. The order taker then types in the customer's pizza order. The system prints out a three-part order on a printer located in the kitchen. The original is used by the cook to prepare the order. When the order is ready, the cook marks the other two copies completed and gives them to the delivery driver to serve as delivery receipts for the driver and customer, respectively. At the same time that the order is printed, the order taker's computer displays a city locator grid that is used to help dispatch the drivers. From a copy of the display, a dispatch slip—showing the customer's street and connecting roads—is printed for the driver. The final system output generated at this time is a record of the order, which is the source for the event data written to the order system.

1. List of actors for use-case: Customer, Employee, Delivery Driver, Cook

2. UML Activity Diagram:

