INFOST 340 – Systems Analysis
Semester: Fall 2017
Instructor: Kevin Trainor
Assignment: Systems Analysis
Course Component: Project Report
Grading Rubric

Submission

Timeliness (10 available points)

Requirements
Must be submitted by date and time indicated in the weekly schedule.

Percent Credit	Description
100	On Time
0	Late (10 points off)
0	Not submitted or submitted too late

File Submitted (10 available points)

Requirements
Submit only 1 file.
File type must be .PDF.
File name includes student name.
File name meets all requirements stated in assignment instructions.

Percent Credit	Description
100	Meets all expectations.
50	Meets nearly all expectations.
0	Does not meet expectations.
0	Not submitted or submitted too late.

1 Context Diagram

Completeness (5 available points)

Requirements

The diagram includes one process that has the same name as the system.

All user groups that will interact with the system are identified as external entities.

Data flows are provided to support all functional requirements that are explicit or implicit in the case scenario.

Percent Credit	Description
100	Substantially exceeds expectations
95	Meets all expectations.
90	Meets nearly all expectations.
80	Meets most expectations.
50	Meets some expectations.
25	Meets few expectations.
10	Meets nearly no expectations.
0	Meets no expectations.
0	Not submitted or submitted too late.

Technique (5 available points)

Requirements
The diagram should take up only one page.
The diagram should include the label "Context Diagram".
The diagram should have only one process symbol.
The process symbol should be a rectangle with rounded corners.
The process symbol should have the same name as the system.
Each external entity should be represented by a rectangle.
External entities should be named with noun phrases.
Data flows should be represented by arrows.
Data flows should only have a single arrowhead (one direction).
Data flow names should be noun phrases.
Data flow names should be singular rather than plural.
A process must show at least one input and one output.
A data flow should not return to the same process in a circular fashion.
Data store symbols must NOT be included on context diagrams.

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100	Substantially exceeds expectations
95	Meets all expectations.
90	Meets nearly all expectations.
80	Meets most expectations.
50	Meets some expectations.
25	Meets few expectations.
10	Meets nearly no expectations.
0	Meets no expectations.
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2 Use Case Diagrams

Completeness (5 available points)

Requirements
All user users that will interact with the system are identified as actors.
Any functionality to be included in the system is represented by a use case symbol.
Actor symbols are connected to use case symbols for all use cases in which those actors participate.
Administrative use cases are provided for Authorize User, Login, and any other appropriate administrative requirements.

Percent Credit	Description
100	Substantially exceeds expectations
95	Meets all expectations.
90	Meets nearly all expectations.
80	Meets most expectations.
50	Meets some expectations.
25	Meets few expectations.
10	Meets nearly no expectations.
0	Meets no expectations.
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Technique (5 available points)

Requirements
Actor names should be consistent with actors being role-based. They should not be based upon job titles or names of individuals.
Actor names must describe a specific business role. They should not be vague.
The System should never be represented by an actor symbol in the use case diagram. The system is represented by the sum of all of the use cases that appear in the use case diagram.
Each use case diagram should include a caption for the "package name". Packages organize use cases into groupings that will fit onto single pages.
An actor symbol should only be connected to a use case symbol if the actor participates in the use case.
Lines that connect use cases should never represent data flow. They only represent participation in the use case.
An arrowhead should not appear at either end of a line that connects an actor symbol to a use case symbol.
Lines should not be used to connect use cases in order to depict either data flow or order of execution.
Use case names must take on a verb-noun phrase form (like Cancel Order).
Nouns used in use case names should take on a singular form that represents one cycle of use interaction (Enter Order rather than Enter Orders).
The use of an <<includes>> relationship between use cases is not recommend for users new to use cases. These can usually be avoided by making the "included" use case a precondition for the "including" use case.
If an <<includes>> relationship is used, the relationship line should only have an arrowhead at the end corresponding to the included use case.
The use of an <<extends>> relationship between use cases is not recommend for users new to use cases. These can usually be avoided by expressing the "extending" use case as an alternate flow in the "extended" use case.
If an <<extends>> relationship is used, the relationship line should only have an arrowhead at the end corresponding to the "extended" use case.

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100	Substantially exceeds expectations
95	Meets all expectations.
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50	Meets some expectations.

25	Meets few expectations.
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0	Meets no expectations.
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3 Use Case Specifications

Completeness (7 available points)

Requirements
There must be 3 use case specifications submitted. Each must be for a non-trivial use case that is a "business use case" rather than an "administrative" use case (do not do either Login or Authorize User).
Each document submitted must be recognizable as a use case specification as demonstrated in this course during lectures and tutorials.
Each specification should correspond to the proper use case from the use case diagram.
Each specification should include sufficient action to accomplish the work necessary to meet the requirements as expressed in the case scenario.

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100	Substantially exceeds expectations
95	Meets all expectations.
90	Meets nearly all expectations.
80	Meets most expectations.
50	Meets some expectations.
25	Meets few expectations.
10	Meets nearly no expectations.
0	Meets no expectations.
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Technique (8 available points)

Requirements
The use case name must match exactly the use case name specified in the use case diagram. It should be included in all places required by the use case specification template.
The number and names of actors mentioned in the narrative flows within the use case specification must match exactly the actors shown on the use case diagram.
Metadata fields in the use case specification forms must be completely and accurately populated.
The Brief Description must be descriptive and brief.
There must be a Basic Flow narrative that describes the normal or most frequent course of action (the Happy Day scenario).
There must be an alternative flow for each possible deviation from the basic flow.
All flows (basic and alternative) must state exactly how they begin.
All flows (basic and alternative) must state exactly how they end.
Within a flow narrative, action should alternate between actors and System.
If requirements are shown in the Special Requirements section, they must be non-functional rather than functional requirements. All functional requirements must be expressed in either the Basic Flow or Alternative Flows.
All pre-conditions for the use case must be explicitly stated (typically as other use cases that must be completed before this use case can be run).
Pre-conditions should not include functional or non-functional requirements that should be expressed elsewhere in the document.
Post-conditions must be provided for both successful completion and unsuccessful completion of the use case.
Post-conditions must only address the system state and must not include functional or non-functional requirements that should be addressed elsewhere in the document.
An Extension Points section should not be included.
At least one Key Scenario must be provided.
Key scenarios must only refer to a combination of actions that occur as the use case flows through the basic flow and the alternative flows. Details of those flow actions should not be repeated when describing the key scenario.
Key scenario descriptions should include a reference to any activity diagrams available to further illustrate the scenario.

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100	Substantially exceeds expectations
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0	Meets no expectations.
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4 Activity Diagram

Completeness (5 available points)

Requirements
Diagram must describe the intended use case scenario (and not some other scenario).
Diagram must include all activities that are part of the scenario as described in the use case specification.
Diagram must NOT include any activities that are NOT part of the scenario as described in the use case specification.

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Technique (5 available points)

Requirements
Diagram must correspond to a scenario identified in the Key Scenarios section of the use case specification.
The logic flow of the activity diagram must match the logic flow presented in the use case specification narratives.
Swim lanes should be provided for System and for each actor that participates in the scenario.
Swim lanes should be provided ONLY for System and for each actor that participates in the scenario.
The name System and Actor names should be capitalized.
The text inside of each activity box need not name the actor or System explicitly since that information is implied by the swim lane.
When decisions symbols are included, each path exiting the decision symbol must have a guard condition.
Guard conditions must appear in square brackets.
When alternative flow paths are created by a decision symbol, flow must be reunited later in the diagram with a merge symbol.
When parallel paths are created by a fork symbol, the parallel paths must subsequently meet at a join symbol.
Each diagram should have only one start symbol and one stop symbol.
Each activity symbol on the diagram must be part of a path that connects continuously from the start symbol to the stop symbol. Isolated activity symbols are not allowed on the diagram.
Flow arrows may not be used to represent activities even if they are labeled with names that sound like activity names.
Activity symbols may not be used to represent decisions even if they contain text that indicates a decision is being made.

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0	Meets no expectations.

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5 Non-Functional Requirements

Completeness (5 available points)

Requirements
Each requirement listed must be a non-functional rather than a functional requirement. That is to say that non-functional requirement must describe a requirement that specifies a criteria that can be used to judge the operation of a system, rather than a behavior that the system must exhibit to enable system users to achieve their job-related goals.
Requirements that do not fall within the U-R-P-S framework (usability, reliability, performance, supportability) usually should not be classified as non-functional requirements.
Whenever possible, preferences should be identified as such rather than as requirements. Too many non-functional requirements may guarantee that the system may only be realized through in-house development.
Usability requirements must be addressed.
Reliability requirements must be addressed.
Performance requirements must be addressed.
Supportability requirements must be addressed.

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Format and Organization (5 available points)

Requirements
Each non-functional requirements should generally take the form of "the system shall …".
Each non-functional requirements should be expressed in a complete sentences that would be understandable to the typical business reader.
Non-functional requirements that could be classified in more than one category should not be repeated. Instead, list the requirement under one of the categories and place "see requirement #X.Y" instructions under all other categories.
Short lists (10 or fewer items in total) may be organized into a single numbered list.
Longer lists (11 or more items in total) should be organized into a category-oriented numbered outline.
The list or outline must be neatly formatted.

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6 Conceptual ERD

Completeness (7 available points)

Requirements
Diagram should include entity types to support all use cases included in the scope.
Diagram should include relationships to support all use cases included in the scope.
Diagram should include attributes to support all use cases included in the scope.
Each entity type should have a designated identifier.

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100	Substantially exceeds expectations
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50	Meets some expectations.
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0	Meets no expectations.
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Technique (8 available points)

Requirements
Entity types must be represented as rectangles.
Entity types must have singular names that are nouns or noun phrases.
Attributes must be represented as text entries within the rectangles.
Identifiers must be distinguished from other attributes (with PK or other notation).
Relationships should have names that are verbs or verb phrases. Relationships surrounding associative entities need not be named.
Cardinality should be indicated at both ends of the relationship line using crow's foot notation.
Cardinality values should be appropriate to implement the scope.
Relationships that hold data must be represented with an associative entity that includes the attributes needed to hold the data.
An attribute should appear on only one entity type (Conceptual data models should not carry redundant data).
Attributes should be located on the one entity type on which they depend.

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0	Meets no expectations.
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7 State-Machine Diagram

Completeness (5 available points)

Requirements
The diagram should explain all of the expected states of an important entity in the data model.
If the assignment specifies a specific entity, than this specific entity must be the subject of the diagram.
The states considered should not be limited to only one entity type in the data model. Often, one application entity is represented by more than one entity type. For instance, the state of an order might be reflected in the various states of the entity types Order, PaymentEvent, PickEvent, ShipEvent, and DeliveryEvent.

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0	Meets no expectations.
0	Not submitted or submitted too late.

Technique (5 available points)

Requirements
The diagram should track the state of only one application entity. Sometimes this is challenging because more than one entity type is being used to track the state of a single entity. Nevertheless, this diagram is not intended to track the states of all entities in the data model. So, while it might consider the states of Order, PaymentEvent, PickEvent, ShipEvent, and DeliveryEvent, it should not also track the states of other distinct application entities like Customer, Employee, and Message.
The boxes on the diagram must represents states of the entity. They cannot represent actions.
The lines on the diagram should be labeled with a description of the activity that triggers the change in state. Not all activities need to be represented in the diagram. Only the last (triggering) activity needs to be documented here.
If choice symbols are used on the diagram, two or more lines must flow out of the choice symbol that are labeled with [guard conditions].
Lines that flow from a terminal state box to the termination (stop) symbol should not be labeled with a description of some trigger. Triggers introduce new states. Each state box that flows directly to the termination (stop) symbol is a terminal state. No subsequent state is possible.
No state boxes may appear on the diagram that are not connected by some flow to the initial (start) symbol and the terminal (stop) symbol.
States that cannot be reached from the start of the diagram are not permitted.
States from which the end of the diagram cannot be reached are not permitted.

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95	Meets all expectations.
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50	Meets some expectations.
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0	Meets no expectations.
0	Not submitted or submitted too late.

Total Available Points = 100