

This document will contain all the information you need for the project.

|                                                            |           |
|------------------------------------------------------------|-----------|
| <b>Updates:</b>                                            | <b>2</b>  |
| <b>Use Cases:</b>                                          | <b>2</b>  |
| UC93: Obstetrics Patient Initialization                    | 2         |
| 93.1 Preconditions                                         | 2         |
| 93.2: Main Flow                                            | 3         |
| 93.3 Sub-flows                                             | 3         |
| 93.4: Alternative Flows                                    | 3         |
| 93.5: Logging                                              | 4         |
| UC94: Obstetrics Office Visit                              | 4         |
| 94.1 Preconditions                                         | 4         |
| 94.2 Main Flow                                             | 4         |
| 94.3 Subflows                                              | 4         |
| 94.4 Alternate Flow                                        | 5         |
| 93.5 Logging                                               | 6         |
| UC95: Labor and Delivery Report                            | 7         |
| 95.1: Preconditions                                        | 7         |
| 95.2: Main Flow                                            | 7         |
| 95.3: Subflows                                             | 7         |
| 95.3: Alternate Flows                                      | 8         |
| 95.4: Logging                                              | 8         |
| UC96: Childbirth Hospital Visit                            | 9         |
| 96.1 Preconditions                                         | 9         |
| 96.2 Main Flow                                             | 9         |
| 96.3 Subflows                                              | 9         |
| 96.4 Alternate Flows                                       | 9         |
| 96.5 Logging                                               | 10        |
| <b>iTrust Engineering Maintenance</b>                      | <b>10</b> |
| <b>Deliverables</b>                                        | <b>11</b> |
| Iterations                                                 | 11        |
| Scenarios                                                  | 12        |
| Due Dates:                                                 | 12        |
| Grades:                                                    | 13        |
| High-Level Grades:                                         | 13        |
| Use Case Grading                                           | 13        |
| For each use case, you will be evaluated on the following: | 13        |
| Jenkins Green Ball (15%)                                   | 13        |

|                                                                                                      |    |
|------------------------------------------------------------------------------------------------------|----|
| Iteration Worksheet and Lab Demo (10%)                                                               | 13 |
| Design (5%)                                                                                          | 13 |
| White-box unit tests and Cucumber black-box tests testing all flows and scenarios in use case (30%). | 13 |
| Use case implementation (30%)                                                                        | 13 |
| Demo                                                                                                 | 13 |
| Participation Requirements:                                                                          | 14 |
| Copy/paste text from syllabus:                                                                       | 14 |
| How these "leadership roles" will manifest in this project:                                          | 14 |

---

## Updates:

If updates/clarifications are needed, they will be listed here.

- 03/02/2017: project assigned
- 03/02/2017: For Kanban boards (if you choose to use them), the following tools are recommended: MeisterTask and Trello
- 03/02/2017: UC93 [E3] was updated for inclusivity. This also impacts UC93 [S1] and UC95 [E2].
- 03/03/2017: Iteration deadlines moved from 10pm to 11:59pm
- 03/13/2017: Clarified [participation requirements](#) for the project
- 03/13/2017: For iterations 1-5, the team lead is to write an executive summary.
- 03/30/2017: For UC96, Subflow [S7] was added and logging code 9604 was added
- 03/30/2017: A grading clarification was made: "For grading each iteration, the teaching staff will pull your **master** branch at 11:59pm on the day of the deadline."
- 03/30/2017: 96.3 [S1] clarifies that "Childbirth hospital visits are a new type of visit created for this use case. ApptType="Childbirth". The HCP should be able to access/view the initialization record for the patient from the childbirth hospital visit page."
- 03/30/2017: 96.3 [S2] clarifies that "There should be a field that allows the HCP to specify if this was a pre-scheduled appointment or if the appointment was made at the time the patient entered the ER (per UC94 [S7])."
- 03/30/2017: 96.2 addendum: "All events are logged."
- 03/31/2017: 96.3 [S5] addendum: "delivery method (may be different than the preferred method)" must be recorded
- 04/03/2017: 95.3 [S1] added "typical" ranges to pregnancy weight gain and fetal heart rate, criteria for advanced maternal age, criteria for high blood pressure
- 04/03/2017: 96.3 [S4] "RH immune globulin" added to the drug list

- 04/05/2017: Engineering Maintenance, database exceptions, clarification: “The EvilDAOFactory class is working as intended and may continue to spit database errors to the console. “
  - 04/05/2017: New refactoring requirements added to maintenance tasks
    - [Code Smells and Refactoring](#)
  - 04/07/2017: added extra credit related to code smells: Address the remaining 3 code smells (for a total of 8) (+1% on project grade)
  - 04/10/2017: Demo requirements clarified re: no double jeopardy.
  - 04/11/2017: CATME grading modification: (1% bonus for completion, no penalty for failure to complete, but failure to complete the CATME excludes you (as an individual) from any performance-based bonuses)
  - 04/12/2017: Demo requirements and bonuses clarified; a sample project demo is linked under the Demo heading below.
  - 04/12/2017: EditRepresentativesActionTest.testCheckIfPatientIsActive() is allowed to print a DBException in the console when attempting to retrieve patient with MID 0.
  - 04/18/2017: update on the demo: “Place a link to your demo video (posted to YouTube -- you may remove it from YouTube after final grades for the course have been assigned) on your iteration wiki page.”
  - 04/18/2017: Added [engineering maintenance grading information](#)
  - 04/18/2017: CATME feedback due 4/23 at 11:59pm
- 

## Use Cases:

For the class project, you will add a new obstetrics and gynecology (OBGYN) module to iTrust.

### UC93: Obstetrics Patient Initialization

#### 93.1 Preconditions

An HCP is a registered user of the iTrust Medical Records system (UC2). The iTrust HCP user has authenticated himself or herself in the iTrust Medical Records system (UC3). The patient associated with the obstetrics patient initialization must be a registered patient in the iTrust Medical Records system.

#### 93.2: Main Flow

Any HCP may search for the patient by MID or patient name [S1][E1][E2][E3]. The history of the patient's obstetrics care is displayed as a list of patient initialization records in descending order by date (the most recent record is at the top of the list). Any HCP has the option to select an

existing record to view. If the HCP selects to view an existing record, the record is shown as a read only version of the information in [S2][S3]. Only HCPs with a specialization of “OB/GYN” may create a new obstetrics record via a link or button the list of patient initialization records. If the OB/GYN HCP selects to add a new record, the OB/GYN HCP enters information required for the initial obstetrics patient visit including the last menstrual period (LMP) [S2] and prior pregnancies [S3]. The OB/GYN HCP submits the form and is sent to the main page for obstetric records with the listing of the patient's history of obstetrics care.

### 93.3 Sub-flows

[S1] If the patient is eligible for obstetric care, the obstetric initialization page is shown. The current date of the obstetrics patient initialization is populated in the date field.

[S2] The HCP enters the date of the first day of the patient's last menstrual period (LMP). The estimated due date (EDD) and the number of weeks pregnant on the obstetrics patient initialization date are calculated and displayed.

- $EDD = LMP + 280 \text{ days}$
- Day 0 of a week is the day (e.g., Monday, Tuesday, ect.) of the LMP. The LMP is day zero, LMP + 1 is 0 weeks 1 day, LMP + 7 is 1 week 0 days, LMP + 8 is 1 week 1 day, etc. The obstetrics patient initialization shows the number of weeks pregnant on the day of the record creation.

[S3] A prior pregnancy has the following information described in Data Format 6.14 [E4]. The table should be populated with information that already exists in the iTrust system, if any. The HCP adds any additional prior pregnancy information to the table.

- Year of conception
- Number of weeks pregnant (how many weeks and days the pregnancy lasted)
- Number of hours in labor
- Weight gain during pregnancy
- Delivery type: vaginal delivery, vaginal delivery vacuum assist, vaginal delivery forceps assist, caesarean section, miscarriage
- Whether the pregnancy was a multiple, and how many

### 93.4: Alternative Flows

[E1] The HCP types an invalid medical identification number or name or a medical identification number or name of a patient not in the system and is prompted to try again.

[E2] The patient chosen is not the desired patient. The HCP does not confirm the selection and is prompted to try again.

[E3] The patient is not eligible for obstetric care. The error message, “The patient is not eligible for obstetric care.” is displayed and the HCP is prompted to try again, or to change the patient's eligibility for obstetric care.

[E4] Invalid inputs are flagged and an error message appropriate to the input is printed.

## 93.5: Logging

| Transaction Code | Verbose Description             | Logged In MID | Secondary MID | Use Case(s) Involved | Type of Transaction | Additional Information | Patient Viewable |
|------------------|---------------------------------|---------------|---------------|----------------------|---------------------|------------------------|------------------|
| 9300             | Create Initial Obstetric Record | Editor (HCP)  | Patient       | 93                   | Create              | EDD                    | Yes              |
| 9301             | View Initial Obstetric Record   | Viewer (HCP)  | Patient       | 93                   | View                | EDD                    | Yes              |

## UC94: Obstetrics Office Visit

### 94.1 Preconditions

An HCP is a registered user of the iTrust Medical Records system (UC2). The patient must be a registered patient in the iTrust Medical Records system. The iTrust user has authenticated himself or herself in the iTrust Medical Records system.

### 94.2 Main Flow

A HCP chooses to document [S2] or edit [S3] an obstetrics office visit for a current obstetrics patient [S1]. A current obstetrics patient is defined as a patient who has been initialized as an obstetrics patient (UC93) with an LMP that is less than 49 weeks, 0 days prior to the office visit date [S4]. An ultrasound may be performed during an office visit [S6]. At the end, the next visit is automatically scheduled for the patient [S7].

### 94.3 Subflows

[S1] The HCP enters a MID [E1] or name of a patient and confirms their selection [E2][E3].

[S2] An OB/GYN HCP [E4] documents the following information related to an obstetrics office visit and saves the obstetrics office visit record. All events are logged (UC5, S8) and the HCP is sent to an overview of obstetrics office visits for the patient. All information is required [E5] and details are described in Data Format 6.15: Date of the office visit - current date

- Number of weeks pregnant as of the office visit date (generated from last menstrual period).
- Weight in pounds
- Blood pressure

- Fetal heart rate (FHR)
- If the current pregnancy is a multiple, and how many
- Whether a low lying placenta was observed during the visit

[S3] OB/GYN HCPs can return to an obstetrics office visit and modify or delete the fields of the obstetrics office visit. The event is logged (UC5, S8) and the HCP is returned in the specific office visit record to verify his or her changes.

[S4] If multiple obstetrics patient initializations fall within the 49 week window (e.g., two pregnancies within 49 weeks, so two initializations), the most recent obstetrics patient initialization is used.

[S5] If the patient's RH- flag (~~UC96~~) is set and the current pregnancy term is past 28 weeks, a notice is displayed that the patient should be given an RH immune globulin shot if they have not already

[S6] During an ultrasound, an ultrasound record is created. In this record, the HCP can upload a .jpg, .pdf, or .png image of an ultrasound. The following information is recorded for each fetus (there may be multiple):

- Crown rump length (CRL)
- Biparietal diameter (BPD)
- Head circumference (HC)
- Femur length (FL)
- Occipitofrontal diameter (OFD)
- Abdominal circumference (AC)
- Humerus length (HL)
- Estimated fetal weight (EFW)

[S7] The next appointment (office visit or delivery visit) will be scheduled for the patient at the end of the appointment. The patient's availability will be automatically taken into account via a publicly available Google calendar for the patient [E6]. Appointments are scheduled between 9am and 4pm, Monday - Friday [E7]. Appointment times default to the time of the current office visit. Schedule frequency is computed as follows

- 0 - 13 weeks pregnant: Monthly appointments (every 4 weeks)
- 14 - 28 weeks pregnant: Appointments every 2 weeks
- 29 - 40 weeks pregnant: Appointments weekly
- 40 - 42 weeks pregnant: appointments every other weekday [E8]
- Childbirth visits can be scheduled anytime between 37-42 weeks at the request of the patient

## 94.4 Alternate Flow

[E1] The HCP types an invalid patient medical identification number and is prompted to try again.

[E2] The patient chosen is not the desired patient. The HCP does not confirm the selection and is prompted to try again.

[E3] The patient chosen is not a current obstetrics patient. The HCP is prompted to try again.

[E4] An HCP without the OB/GYN specialization is unable to create or edit an obstetrics office visit. They are prompted to create a regular office visit (UC11).

[E5] Invalid or missing inputs are flagged and an error message appropriate to the input is printed.

[E6] If there is no available calendar, an appointment is automatically created for the same time of day and day of week as the current appointment.

[E7] If the scheduled date/time is a federal holiday, pick the next available day. Federal holidays include: New Years Day, Martin Luther King Jr. Day, George Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Thanksgiving Day, Christmas Eve, Christmas Day.

[E8] If the patient reaches 42 weeks pregnant, the next visit is a Childbirth Hospital Visit (UC96)

## 94.5 Logging

| Transaction Code | Verbose Description           | Logged In MID | Secondary MID | Use Case(s) Involved | Type of Transaction | Additional Information                         | Patient Viewable |
|------------------|-------------------------------|---------------|---------------|----------------------|---------------------|------------------------------------------------|------------------|
| 9400             | Create Obstetric Office Visit | Editor (HCP)  | Patient       | 93                   | Create              | Office Visit ID                                | Yes              |
| 9401             | View Obstetric Office Visit   | Viewer (HCP)  | Patient       | 93                   | View                | Office Visit ID                                | Yes              |
| 9402             | Edit Obstetric Office Visit   | Editor (HCP)  | Patient       | 93                   | Edit                | Office Visit ID                                | Yes              |
| 9403             | Ultrasound                    | Editor (HCP)  | Patient       | 93                   | Edit                | Office Visit ID                                | Yes              |
| 9404             | Schedule next office visit    | Editor (HCP)  | Patient       | 93                   | Create              | Current office visit ID, next office visit ID  | Yes              |
| 9405             | Schedule childbirth           | Editor (HCP)  | Patient       | 93, 96               | Create              | Current office visit ID<br>childbirth visit ID | Yes              |

## UC95: Labor and Delivery Report

### 95.1: Preconditions

UC 93, 94, and 96 must be fully implemented (including their pre-requisites) before UC 95 can be implemented.

### 95.2: Main Flow

Any HCP may search for the patient by MID or patient name [S1][E1][E2]. A report will be generated containing all relevant information about the pregnancy. All HCPs can generate this report in case of emergency.

### 95.3: Subflows

[S1] - A current labor and delivery report is generated and displayed containing the following information. The generation of the report is logged.

- Information for each past pregnancy
  - Pregnancy term
  - Delivery type
  - Conception year
- Estimated delivery date
- Blood type
- Obstetrics Office Visit Information, most recent visit first
  - Weeks pregnant at office visit
  - Weight at office visit
  - Blood pressure at office visit
  - Fetal heart rate (FHR) at office visit
  - Whether the pregnancy was a multiple, and how many
  - If a low lying placenta was observed during the visit
  - Complications
- Pregnancy complication warning flags
  - RH- flag
  - High Blood Pressure (pre-eclampsia)
    - High blood pressure is 140/90. If either value, systolic or diastolic, is at or above those ranges, it is considered a complication (i.e., 140/80 is high, 130/90 is high, 139/89 is not high)
  - Advanced Maternal Age
    - This means the patient is 35 or older at the time of delivery (or expected delivery)
  - Whether or not the mother has a relevant pre-existing condition (listed later)
  - Whether or not there are relevant maternal allergies (listed later)

- Low-lying placenta
- High genetic potential for miscarriage
- Abnormal fetal heart rate
  - Normal fetal heart rate range: [120, 160] inclusive
- Multiples in current pregnancy
- Atypical weight change
  - Typical weight gain range (in pounds): [15, 35] inclusive
- Hyperemesis gravidarum
- Hypothyroidism
- A list of relevant pre-existing conditions, including:
  - Diabetes
  - Chronic illness (autoimmune disorders)
  - Cancers
  - STDs
- A list of the mother's common drug allergies, including:
  - Penicillin
  - Sulfa drugs
  - Tetracycline
  - Codeine
  - NSAIDs

### 95.3: Alternate Flows

[E1] The HCP types an invalid medical identification number or name or a medical identification number or name of a patient not in the system and is prompted to try again.

[E2] The selected patient is not eligible for obstetric care or does not have an obstetrics record.

The error message,

“Selected patient does not have an obstetrics record” is displayed and the HCP is prompted to try again.

### 95.4: Logging

| Transacti<br>on Code | Verbose<br>Descripti<br>on         | Logged-I<br>n MID | Seconda<br>ry MID                      | Use<br>Case(s)<br>Involved | Type of<br>Transacti<br>on | Addition<br>al Informati<br>on | Patient<br>Viewable |
|----------------------|------------------------------------|-------------------|----------------------------------------|----------------------------|----------------------------|--------------------------------|---------------------|
| 9500                 | Labor<br>and<br>Delivery<br>Report | Accessed<br>HCP   | MID of<br>patient<br>being<br>accessed | 95                         | View                       | None                           | True                |

## UC96: Childbirth Hospital Visit

### 96.1 Preconditions

An HCP is a registered user of the iTrust Medical Records system (UC2). The patient must be a registered patient in the iTrust Medical Records system. The iTrust user has authenticated himself or herself in the iTrust Medical Records system.

### 96.2 Main Flow

A patient's childbirth hospital visit is scheduled apriori during an office visit (UC 94) [S1], or during an Emergency Room visit [S2]. Any HCP may search for the patient by MID or patient name [S1][E1][E2]. The history of the patient's obstetrics care is displayed as a list of patient initialization records in descending order by date (the most recent record is at the top of the list). The HCP specifies the patient's preferred childbirth method [S3]. Drugs may be administered during labor and delivery [S4]. At the time of delivery [S5], a new patient is created [S6]. All events are logged.

### 96.3 Subflows

[S1] A patient has a childbirth hospital visit scheduled during a routine office visit (UC 94). Childbirth hospital visits are a new type of visit created for this use case. ApptType="Childbirth". The HCP should be able to access or view the initialization record for the patient from the childbirth hospital visit page.

[S2] A patient in labor enters the emergency room and the HCP creates a childbirth hospital visit. There should be a field that allows the HCP to specify if this was a pre-scheduled appointment or if the appointment was made at the time the patient entered the ER (per UC94 [S7]). [E3]

[S3] The preferred childbirth method is specified when the office visit is scheduled per [S1] or [S2]: Delivery type: vaginal delivery, vaginal delivery vacuum assist, vaginal delivery forceps assist, caesarean section, miscarriage. This should use a drop-down or radio-button (or similar) and not be specified solely in the comments.

[S4] Drugs administered during the childbirth are recorded (drug, dosage)

- Pitocin
- Nitrous oxide
- Pethidine
- Epidural anaesthesia
- Magnesium sulfate
- RH immune globulin

[S5] At the time of delivery, the HCP enters the date, time, delivery method (may be different than the preferred method), and sex of each baby that is delivered (in the case of multiples)

[S6] For each baby that is delivered, a new patient file is created (UC1).

[S7] OB/GYN HCPs can return to a childbirth visit record and modify or delete any of the fields. The event is logged.

## 96.4 Alternate Flows

[E1] The HCP types an invalid medical identification number or name or a medical identification number or name of a patient not in the system and is prompted to try again.

[E2] The patient chosen is not the desired patient. The HCP does not confirm the selection and is prompted to try again.

[E3] The baby is delivered before the patient reaches the hospital or while in the emergency room. Default to vaginal delivery, and proceed with [S5]. A flag should be set to indicate that time of delivery is estimated in this alternate flow.

## 96.5 Logging

| Transaction Code | Verbose Description     | Logged-In MID | Secondary MID           | Use Case(s) Involved | Type of Transaction | Additional Information | Patient Viewable |
|------------------|-------------------------|---------------|-------------------------|----------------------|---------------------|------------------------|------------------|
| 9600             | Create Childbirth Visit | HCP           | MID of patient          | 96                   | Create              | None                   | True             |
| 9601             | Add childbirth drugs    | HCP           | MID of patient          | 96                   | Edit                | None                   | True             |
| 9602             | A baby is born          | HCP           | MID of maternal patient | 96                   | Edit                | None                   | True             |
| 9603             | Create baby record      | HCP           | MID of maternal patient | 96, 1                | Create              | MID of baby            | True             |
| 9604             | Edit childbirth visit   | HCP           | MID of maternal patient | 96                   | Edit                | None                   | True             |

# iTrust Engineering Maintenance

The following are all non-functional requirements for the implementation of the use cases and general maintenance of iTrust. Parts (1) and (2) and (3) are **required**:

1. Running all the tests spams the console with database exceptions. It also slows down the test execution. Find out what is causing the database exceptions and fix it. All design decisions are yours, but removing the tests and/or removing the logging are not options.

- a. The EvilDAOFactory class is working as intended and may continue to spit database errors to the console.
2. When running the iTrust tests, the number of database connections currently needs to be set to 1000, otherwise the tests start failing. Fix this so the iTrust tests can be successfully run with just 151 database connections (at most - this is the default value).
3. Refactoring code smells, as defined [here](#). Your job is to address 5 of the 8 listed smells.

Extra credit maintenance (only available to your team after the required maintenance is completed, these do not need to be completed in order):

4. Make the UI look and feel (e.g., color scheme) configurable at runtime in a (newly created) settings panel. (+3% on project grade)
5. Allow HCPs to upload profile pictures of patients. These should be viewable when patient demographic information and when basic health information is viewed. (+2% on project grade)
6. Address the remaining 3 code smells (for a total of 8) (+1% on project grade)

## Deliverables

You will deliver completed use cases and engineering changes in 6 iterations (numbered 0 - 5). Starting with Iteration 1, and until Iteration 4, you must deliver at least one use case by the end of each iteration. You can continue working on non-functional engineering changes and cross-cutting scenarios until the final iteration.

## Iterations

In iterations 1-5, you will create a separate GitHub wiki page for each iteration, titled Iteration X (where X is 1, 2, 3, 4, or 5). This will describe the tasks completed for your use case(s) and scenarios.

On the iteration wiki, state the team lead for the iteration at the top of the page. The team lead is to write a high-level executive summary of what your team accomplished. The target audience of this summary is management. Also include a list of things your team planned to accomplish but did not finish, a justification for why it did not get done, and a statement of how it impacts the next iteration. This summary should be 2-3 paragraphs in total.

Include a table with your iteration summary information, like the following:

| Deliverable | Item/Status | Information |
|-------------|-------------|-------------|
|-------------|-------------|-------------|

|                |            |                                   |
|----------------|------------|-----------------------------------|
| Use Case       | UC94       |                                   |
| Scenario       | 1          | #23                               |
| Scenario       | 2          | #24                               |
| Unit Tests     | Complete   | testInitializeOBPatient.java, ... |
| Cucumber Tests | Incomplete | Scenario1, error1, ...            |
| Jenkins        | Green      |                                   |
| Design         | Complete   | Link to design docs in wiki       |

- GitHub issues in a markdown referred to as #23 will turn into links when in the same repo.
- You are free to use any design notation (including text)
- You might consider creating these Iteration wiki pages during Iteration 0 so you can use them as a planning tool for the work to be completed. You can also add a column to indicate who is responsible for which deliverables.

Iteration 0 is a planning iteration where you will create scenarios for all the use cases and enter them as GitHub issues (see next section). Since Iteration 0 happens during lab, if you are not able to complete scenarios that cover all the subflows and error flows in the use cases, you'll need to work outside of lab. Additionally, you'll need to create GitHub issues to tackle the required iTrust maintenance.

## Scenarios

You are to create scenarios for the use cases that will be used to guide your development. As part of Iteration 0, you will define the scenarios. In Iteration 1, you will have completed some basic scenarios and will have a complete list of scenarios for the use cases.

You should create scenarios for each of the use cases and use these to guide your development. The scenarios should map to the subflows and error flows in the use cases. Each scenario should be in a GitHub issue that can be referenced in the iterations summary table. The GitHub issue (or comments for the issue) should identify relevant tests that demonstrate the behavior of the scenario.

Example Scenario #1, UC94 [S1][S2][S6][S7][E7]

[S1] Sporty Spice is 14-weeks pregnant and a current patient of Dr. Seuss. [S2] She has a routine obstetrics office visit on June 20, 2016 at 9:00am. At this office visit, she weighs 135lb, her blood pressure is 110/82, and the FHR is 110bpm. OH WAIT! Another heart rate just came in at 130bpm. [S6] Dr. Seuss schedules an ultrasound [S6] and discovered Sporty Spice is having not twins, but triplets! [S2] Dr. Seuss records a 3rd fetal heart rate of 125bpm. Sporty Spice passes out during the ultrasound so the measurements of the babies are not recorded and no images are uploaded. [S7][E7] Her next appointment would be scheduled for July 4, 2016 at 9:00am, except that's a federal holiday, so July 5, 2016 at 9:00am is selected instead.

## Due Dates:

- Iteration 0: March 16th, 11:59pm (this is in Lab)
- Iteration 1: March 22nd, 11:59pm (this is a Wednesday)
- Iteration 2: March 29th, 11:59pm
- Iteration 3: April 5th, 11:59pm
- Iteration 4: April 12th, 11:59pm
- Iteration 5: April 19th, 11:59pm
- CATME: April 23, 11:59pm

For grading each iteration, the teaching staff will pull your master branch at 11:59pm on the day of the deadline.

## Grades:

### High-Level Grades:

- UC93 (18%)
- UC94 (18%)
- UC95 (18%)
- UC96 (18%)
- iTrust Engineering Maintenance (18%)
- [Demo](#) (10%)
- CATME peer feedback (1% bonus for completion, no penalty for failure to complete, but failure to complete the CATME excludes you (as an individual) from any performance-based bonuses.)

## Use Case Grading

For each use case, you will be evaluated on the following:

- Jenkins Green Ball (15%)
- Iteration Worksheet and Lab Demo (10%)
- Design (5%)
- Scenarios (10%)
- White-box unit tests and Cucumber black-box tests testing all flows and scenarios in use case (30%).
- Use case implementation (30%)

### Engineering Maintenance Grading:

- Jenkins Green Ball (10%)
- Database exceptions (30%)
- Database connections (30%)
- Smells (30%)

For each of the maintenance tasks (database exceptions, database connections, smells), include design information in your wiki that describes how you did the maintenance, why you chose that solution, and what other solutions (if any) you considered.

### Demo

Link to demo instructions: [Demo](#)

You will create a demo screencast for your final completed delivery. Some recommendations for [creating screencasts here](#).

A sample demo can be viewed [here](#) (created by Kai's team last spring). You may wish to demonstrate any extra credit or particularly snazzy engineering maintenance as well as the basic functionality.

Place a link to your demo video (posted to YouTube -- you may remove it from YouTube after final grades for the course have been assigned) on your iteration wiki page.

### Participation Requirements:

The following clarifies the participation requirements for the project:

Copy/paste text from syllabus:

*"A team project will be completed in groups of four or five students. This course is based on reality, so the project will be as real-world as we can make it.... which might just mean that some aspects of the project may intentionally cause you some heartache (such as ill-defined AND/OR changing requirements). Remember, it's for your own good.*

*During the team project, each team member will take on a leadership role for some aspect of the project development. However, all team members are also developers. As such, we expect that each team member will contribute to the team's project by pushing a meaningful code change to the team's GitHub repo. Any team member that doesn't commit code for a given iteration without some team and management approved reason will lose points on their iteration grade for that week.*

*Additionally, we expect that 1) the master branch will stay green; and 2) there is at least one merge of development code to master at each iteration."*

How these "leadership roles" will manifest in this project:

- For each iteration 1-5, one member of the team will "own" the use case and/or maintenance tasks (whatever happens to be due that iteration). This is the **team lead**.
  - The team lead's name must be clearly stated at the top of the relevant iteration worksheet.
  - The team lead is responsible for making sure the use case implementation is complete, documents are complete, tests are complete, scenarios are complete, and there's a green ball.
  - The team lead will demonstrate the iteration feature to your TA during the lab demo.
  - The team lead is expected to participate actively in development during their iteration by, for example, committing code, commenting on pull requests, and writing tests.
  - The team lead is responsible for communicating with the teaching staff if issues arise during the iteration.
- Each member of the team must be the team lead at least once.
- A team lead must be assigned for each iteration 1-5.
  - If your team has four people, iteration 5 may have co-captains as team leads.

