Use Python3

Story point conversion: one story point == one hour

By convention, tasks are assigned a minimum of one story point (even if believed to take less)

File structure:

- Actual program
  - Src
    - (whatever)
  - Student
    - Student1
    - Student2
  - QS
    - QS1
    - QS2
    - etc.

U S E R S T O R Y B R E A K D O W N

1) As Jane, a professor, I would like to create a Homework question set comprised of a sequence of questions containing only simple text

1. Add UI form for starting a new homework question set (Learn TkInter python library)
   Story points: 4 (Accounting for learning UI library coding)
   Dependencies: None
2. Make screen for choosing type of questions in question set
   Story points: 1
   Dependencies: T1
3. Add an option for multiple choice questions. (This is the only option initially.)
   Story points: 1
   Dependencies: T2
4. Implement text based UI user input for questions and answers.
   Story points: 3
   Dependencies: None
5. Allow user to specify the correct answer.
   Story points: 1
   Dependencies: T4
6. Allow user to specify the number of questions in a set
   Story points: 1
   Dependencies: T3
7. Implement a File I/O system for reading and writing question sets so question sets are saved for later use (1 file per question set, 1 folder per course)
   Story points: 3
   Dependencies: T5, T6 (All of the above basically)

2) As Amal, a student, I would like to be presented with a list of all homework question sets

1. Read list of question sets from the folder
   Story points: 2

Dependencies: None

2. Design separate student view UI for listing the read question sets
   Story points: 2
   Dependencies: T1

3) As Johnson, a student, I want to be able to select a Homework question set from a list, and then be presented with the sequence of questions created for that set, one-by-one

1. In the UI, add a button next to all displayed question sets which allow the student to attempt them
   Story points: 2
   Dependencies: None
2. Open selected question from the file system
   Story points: 2
   Dependencies: T1
3. Create UI for displaying question and answer input
   Story points: 1
   Dependencies: T2

4) As Johnson, a student, I want to be able to answer a Homework question I have been presented with by selecting one of many pre selected answers given to me and then submitting this answer.

1. Add clickable buttons with text beside them that represent possible answers.
   Story points: 1
   Dependencies: None
2. Add a button that submits the answer selected
   Story points: 1
   Dependencies: T1
3. Compare the given answer with expected and return whether or not it matches
   Story points: 1
   Dependencies: T2
4. Add a popup/textbox which appears after answering an individual question which informs the user whether their answer was correct, and also lock input for that question after showing this feedback
   Story points: 2
   Dependencies: T3
5. Record the mark for that question in a local object so that it can be averaged out as a percent at the end of the question set
   Story points: 1
   Dependencies: T3
6. Design UI form to display %mark at the end of a question set
   Story points: 1
   Dependencies: T4

5) As Johnson, a student, I want the question set list to display whether or not I have taken a Homework set along with my previous and highest % marked attempts on that set

1. Save a student's %mark for a graded question set attempt to a file inside of a directory for that student's attempts, replace highest% mark stored if recent mark is higher
   Story points: 3
   Dependencies: None
2. Add on UI to question set menu for displaying highest and previous %marks for each question set by reading from student's attempt file
   Story points: 2
   Dependencies: T1

6) As Amal, a student, I want to be prompted to retake an entire Homework question set upon completing it so that I can practice more and improve my grade

1. Add a UI prompt after a homework set which displays a button that retakes the homework assignment and a button that takes the user back to the question set menu
   Story points: 1
   Dependencies: None

7) As Amal, a student, I want to be able to save my progress in a question set so that I can later on resume the question set from the same state as when it was saved

1. Add Button to UI for save progress
   Story points: 1
   Dependencies: None
2. Create backend for saving progress and connect it with the button object
   Story points: 3
   Dependencies: T1
3. Add a popup/prompt when clicking a question set to resume question set (if one exists) or to start over
   Story points: 1
   Dependencies: None
4. Add code for resuming a question set (done by reading question results from file until we reach one which is not marked right/wrong - that one is where we continue from)
   Story points: 2
   Dependencies: T3

8) As Amal, a student, I want to be able to receive textual feedback from the application if I answer a question incorrectly which concisely explains why my answer was wrong and what the correct answer was

1. Add button in question creation input screen to toggle including textual feedback when the student gets it wrong
   Story points: 1
   Dependencies: None
2. Show that feedback in a textbox when a student gets a question wrong

Story points: 1
Dependencies: T1

9) As George, a professor, I would like for there to be system defined rules that prevent students from creating, deleting or modifying existing questions sets by requiring a login

1. Create starting window with fields for username, password, and ability to select if they are a student or a professor
    a. Story Points: 1
    b. Dependencies: None
2. Create backend folder structure for storing login information
    a. Story Points: 2
    b. Dependencies: None
3. Check if user of given information exists
    a. Story Points: 1
    b. Dependencies: T1, T2
4. Create new folder (new user) if the user doesn't exist
    a. Story Points: 2
    b. Dependencies: T3
5. Direct user to the appropriate window (student or professor)
    a. Story Points: 3
    b. Dependencies: T3
6. Connect API to UI
    a. Story Points: 1
    b. Dependencies: T5

10) As Johnson, a student, I want to be able to see additional information (number of questions, due date, highest mark, and status) in a question set

1. Display the number of questions in a set
   Story points: 1
   Dependencies: None
2. Display the due date of each available question set in the main menu
   Story points: 1
   Dependencies: None
3. Display the highest mark of each available question set in the main menu
   Story points: 1
   Dependencies: None
4. Display the status (complete or not complete) of each available question set in the main menu
   Story points: 1
   Dependencies: None

11) As George, a professor, I would like to be able specify a deadline date and time for a Homework question set which prevents students from taking or resuming a question set on dates past the deadline

1. Add option in homework input screen to set a deadline (day and time)

Story points: 1
Dependencies: None

2. Cross out the Assignment in the assignment selection menu if the deadline is reached, preventing students from starting/resuming the assignment.
   Story points: 2
   Dependencies: T1
3. Grade assignment based off of the answers submitted by the student so far
   Story points: 2
   Dependencies: None

12) As Jane, a professor, I would like the application to randomize the ordering of answers for multiple choice questions

1. Implement an algorithm to randomize the multiple choice answers upon opening a new instance of a question. Takes some number of answers and randomizes order, remembering the correct one.
   Story points: 3
   Dependencies: None
2. Update the UI for student-side multiple choice answers to be able to display the answers after they've been randomized
   Story points: 1
   Dependencies: T1

13) As Jane, a professor, I would like to be able to randomize certain numerical values in questions and answers

1. Add button to insert a range of values when creating a question.
   a. To insert a range of values, add notation that the user can input that indicates that it is a range of values

   Story points: 3
   Dependencies: None
2. Implement option to input algorithm to calculate correct answer using randomized values.
   Story points: 1
   Dependencies: T1

14) As Jane, a professor, I want to be able to give an existing Homework question set a customized name which I can type in and specify myself

1. Save questions sets with options for titles and other necessary labels.
   Story points: 1
   Dependencies: None

15) (EPIC) As George, a professor, I would like be able to use the LaTeX system when writing Homework questions so that I can properly and easily represent mathematical symbols and notation

1. Add button for LaTeX mode in homework input screen

Story points: 1
Dependencies: None

2. Implement LaTeX typesetting support/recognition [PyLaTeX: https://github.com/JelteF/PyLaTeX] Under MIT license, need to ask about this if we're going to use it!]
   Story points: 8
   Dependencies: T1

16) As Jane, a professor, I would like to take textual input instead of presenting preselected answers so that I can simulate more open ended questions

1. Add option to question creation menu for creating textual types of questions
   Story points: 1
   Dependencies: None
2. Modify the question creation UI to account for short answer text questions
   Story points: 2
   Dependencies: T1
3. Allow student users to input answers using a text input UI box
   Story points: 1
   Dependencies: T2

17) As Jane, a professor, I would like to be able to set certain question sets to be ungraded

1. Add option in question set to be ungraded
   a. Ungraded question sets don't count for marks but show marks on main screen for reference
   Story points: 1
   Dependencies: None
2. Display assignment as ungraded to student in the main menu
   Story points: 1
   Dependencies: None
3. Implement the fact that the assignment is ungraded
   Story points: 3
   Dependencies: T1, T2

18) (EPIC) As Jane, a professor, I would like to be able to view statistics about class participation which tell me what percentage of the class has taken a question set at a given time.

1. Implement ability to collect class participation statistics
   Story points: 3
   Dependencies: None
2. Add option in main menu screen to see analytics [PlotLy, also under MIT license!]
   a. For professors, show individual stats for each student
   b. For students, show aggregate data for the entire class
   Story points: 6
   Dependencies: T1

19) (EPIC) As Jane, a professor, I would like to be able to view the time that a student had the assignment open for attempt, and how long it take for a student to finish the assignment. Including the start and end dates.

1. Store start and end time for a student's session on a question set [Standard Library datetime.time()]
    a. Start time is from a timestamp stored when a student begins an attempt on a question set. End time is from a timestamp after the final question in a set is submitted

    Story points: 2

    Dependencies: None
2. Calculate and store time spent (endTime - startTime = timeSpent)

    Story points: 1

    Dependencies: T1
3. Add option (professor only) to see time spent on a question set (aggregate and individual)

    Story points: 1

    Dependencies: T2