2020

COMS2003/2013 PROJECT

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RUNTIME TERROR!

LECTRAC

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**Problem Statement**

We are currently facing a global pandemic and it seems as if everything has stopped, so in

order to stay relevant we need to adapt. Including the normality of attending university

campuses, which puts both students and lecturers in unfamiliar territory. Lectures are

unsure on how to provide an efficient online working environment and students are

finding it difficult to keep themselves organised.

Registered students do not have a platform where they are able to access all work material that they need to do and all work due date. Students need to scour multiple times a day for what needs to be done for each course via received emails, Sakai or Moodle. This creates problems for students who find it difficult to organise their time and will then miss due dates or try to complete tasks a few hours or minutes before it is due.

Our team has created a solution for this problem. We have designed a mobile app that allows students to access course related to-do lists so that they only need to go to one platform to find out all the work they need to do for each of their registered courses. The app also has a calendar feature that allow students to view any upcoming due dates for various course work.

Lecturers can access the app to add due dates to the calendar and add what work needs to be studied and completed to the course to-do list. Lecturers will also be able to broadcast messages to the students via the app and chat with students via the forum.

**External Research**

# **Survey**

1. Are you happy with the current online learning?
2. Do you miss due dates, laboratories or assignments because of the unorganized online working environment?
3. Do you wish that you had a single platform to get the due dates for all of your registered courses?
4. Have you created a work-related to-do list for yourself?
5. Do you think a to-do list would be beneficial to you?
6. Would you like a more organised system to check what work needs to be done rather than scrolling through emails and Sakai tabs?

**Description of Procedures**

1. **Login System**

This login feature is a security measure so that only students and lecturers who are registered at WITS university can access the app. The user (student/lecturer) must provide a username and password that is saved on their respective databases. The student username is the student number and their password is the same password that they use to access Sakai. The same goes for the lecturer.

1. **Calendar**

The calendar feature allows for students to see all projects, labs and homework assignments that are due for ALL the courses that they are registered for. The student will be able to filter the calendar to see individual course due dates or due dates for all courses. The lecturer can login to the app and add a due date for their respective assignments on the calendar.

1. **To-do List:**

This feature has a course community to-do list and a personal user to-do list. This allows students to create their own personal to-do list so that they can scratch out or erase tasks that they have completed. The community to-do list allows for students to view all course work that they need to complete, which is added to the to-do list by the lecturer. This feature also allows students to choose if they want to view individual courses, or all courses combined.

1. **Message Posts**

The message posts are broadcasted messages that a lecturer can add to their respective courses as announcements for students to read.

1. **Test Marks**

This feature allows students to access all previous marks from their registered courses in one location. Students can view their previous test results and the topics contained in the test so that they are aware of their performance and where they can better improve.

1. **Chat**

This could either be an online forum or a chat feature (like WhatsApp). This allows students and lecturers to communicate with each other about various questions or topics and allows other students to benefit from the feedback as well.

1. **Push Notifications**

This is so that students can get a notification or reminder that a project, lab or homework assignment is due. The notification will remind the student of the due date a day before it is due and on the day it is due. This feature is extremely beneficial because then students will be more aware of die dates and will hand in their work on time.

**Database Design**

# **Database Tables**

--------------------------------ADD SCREENSHOTS OF DATABASE TABLES-------------------

# **Business Rules**

1. **A student must be enrolled for at least one course.**
2. **A course can have many enrolled students.**
3. A lecturer must be registered to teach at least one course.
4. A course can have many lecturers registered to teach it.
5. **A course can have zero or many tasks.**
6. **A task can belong to only one course.**
7. A student can have written many tests.
8. A test can be written by many students.
9. **A course can generate many tests.**
10. **A test can be generated by only one course.**
11. A lecturer can post zero or many tasks.
12. A task can only be posted by one lecturer.
13. **A lecturer can post many messages.**
14. **A message can be posted by only one lecturer.**
15. A course can have many messages.
16. A message can be about only one course.

# **Initial ERDs**

In our project, we have two ERD designs because we are using two databases. The first database is the *LecTrac* database and the second database is the database which belongs to the University of the Witwatersrand. We are using the Wits database as a security precaution in our app. When a student or lecturer registers to us the app, it will confirm the Student\_ID or Lecturer\_ID with the actual Wits database (in our case the Wits database is a dummy database). In the first ERD, we explain our app database, and in the second ERD we show the relationship between the two databases.

Our analysis also has a third ERD which represents the relationships between the local database (SQLite).

**LecTrac ERD:**

A close up of a piece of paper

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**Databases ERD:**

A screenshot of a cell phone

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**Local ERD:**

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