IT8108: Mobile Programming Project

Semester:	Semester A, 2019-2020
Tutors:	Dr. Philippe Pringuet (Course Coordinator)
Learning Outcomes Covered:	LO1 - Design and implement programs (or Apps) for a mobile platform to a given business requirement. LO2 - Follow best practice, industry standards, professional ethics, diagram designing, programming and documentation conventions during the programming process.

Weighting:	65% divided into:
	
	     o 30% for Design Document
	
	     o 35% for iOS App Implementation

Instructions:	• Regularly update Trello project plan between week 4 and week 15 (these will also be included as part of the design document and the implementation). • Submit the project design document on Moodle by Monday 11th November at 11:55pm. • Submit your App as an xCode project on Moodle by Wednesday 8th January at 11:55pm
Notes	• Requests for extensions should be made 2 working days before the deadline to Course Coordinator. Extensions will only be approved with valid reasons. Extensions are for the whole group. You are only permitted a maximum of one extension per course per semester. • Late submissions (less than 3 days) will be capped at 60%. Late submissions (more than 3 days) will receive 0 grade

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Relocent Technologies

This semester the client is Mr Paul Poulose, Co-Founder of Relocent Technologies.

At Relocent, we're interested in building products and platforms that disrupt the way people experience things around them. Excpy, the first out of our stable, looks at changing the way people experience digital content in the real world. Its all about Smart Content, Smart People and Smart Cities. Excpy - Discover Great Experiences. At Relocent, we believe in the power of technology and when implemented in the right manner, could enhance experiences. Quite specifically, Relocent looks at technology that affects the way people consume content. We believe that content and data can be curated to an extent greater than what is available today. Using the right technology, we can clear away the noise and clutter of information and improve a user's experience.

Paul is a digital specialist equipped with a blend of expertise in strategic planning, process development, and project management. He is a leader with in-depth e-business knowledge and a tech evangelist and is interested in meeting like minded people. His specialities range from Branding & Identity, Marketing, eCommerce Business Modeling, Graphic Designing, Interactive Strategy, Social Media Strategy, Mobile App Strategies, Information Architecture, Usability Analysis, and Proximity Marketing.

The Brief

This semester the brief is open. The project is to be developed as groups of two and must includes all the basic requireds listed below. Ideas of topics are provided below, including a short description. If you wish to pick a different theme/topic, you must get approval in writing from the course coordinator by summitting a one page description of your proposed app.

Ideas of topics

1. Logbook app for divers – an app to record each dive a diver has done (including safety aspects, notes, location, …)
2. Recipe Book – an app to create/edit recipes on iPhone/iPad (extra recipes could also be added from third party API provider)
3. Cryptocurrency Wallet – an app that allows the user to keep a record of all the crypto currencies purchased on different crypto exchange platforms. Multiple wallets can be maintained.
4. Travel App – an app that helps travelers pack the right items in their luggage (to avoid forgetting critical items such as passports, chargers, adapters or bug spray)
5. My Spending app – an app to record every spending by category (and provide reports on current budget)
6. Vaccination App – an app to keep track of the vaccination for children or pets
7. My Mechanic App – an app to record all service and maintenance for your vehicles
8. HIIT App – an app to create personalized High Intensity Interval Training (HIIT) sessions (including timers)
9. My Coach App – an app to help football coaches mark attendance at training and make teams for games during training
10. Shopping List – an app to record list of items required (either for weekly shopping or as a one off purchase)

11. ToDo list for students (categorized by course/assignment)

Other ideas such as Currency Exchange app or Movie Collection app would require access to data from API.

Required Features

- View/Add/Edit list of categories
- View details of selected item
- Search/Filter
- Save data locally

- View list of items for selected category
- Add/Edit/delete an item
- List by date/category/type
- Update user settings

Ideas for additional features
- Saving data online (Amazon Web Service, Google Firebase, Microsoft Azure or even self-developed PHP/MySQL web service are acceptable)
- Get new data from API
- Notifications for upcoming event
- Sign up/Login (including touchID/faceID, and using signup platforms such as Cognito, Google Firebase login, or Facebook login)
- Social Sharing (Facebook/Twitter), Invite a friend
- Location based features (Find my Vet, Find my mechanic, Location of dive, location based notification)
- User Feedback, App Analytics of usage

Notes:
- Tutorials will not be provided for these extra features.
- The 6 best (and functional) features will be marked and bonus marks will be allocated for extra features.
- If saving data online, the following infrastructure diagram summarizes how the app connects to these services.
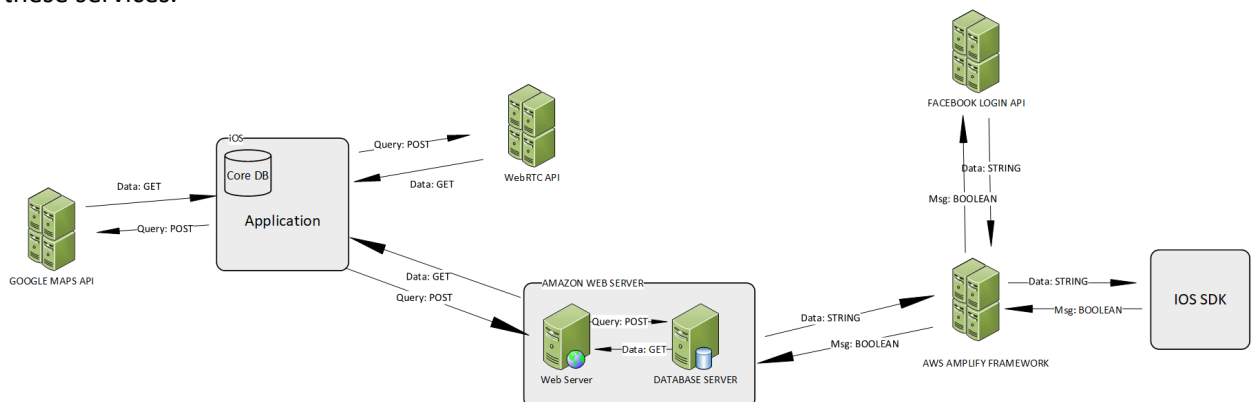
- If using a service such as Amazon Cognito, you can avail of all the advantages below (same with Google Firebase)

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Assessment Description

This is a group project (with individual components). Groups should be composed of 2 members. The project is divided in two phases:

1. Requirements Gathering and Design (30%)
2. Implementation and Testing (35%)

When approaching the project you should follow the software life cycle: You will need to produce an initial design (your design may change as the project develops) from which you will then create your application. It is also expected that every member of the team understand every aspect of the project and therefore close collaboration between each team member is expected so that all members of the team have a good understanding of the *entire* application.

Assessment Part 1a – Project Management (marked as part of project document)

You will need to regularly update the progress of the team on Trello (one Board per team) but each member needs to make contributions to the Trello Board and submit their own work.
Use the template provided on Trello, update as required for your project.
Individual contributions in the management of the project will also be evaluated through quality of contributions to Trello (it is expected that each member post their contribution to the Trello Board at least twice per week – minimum of 10 relevant posts per member from 6th October to 11th November

Assessment Part 1b – Project Design Document (30%)

The project document should describe your design process and justify the decisions you have made.
It will include 6 sections (on top of the usual report structure and references):
- An Introduction including description of the backgroup/theme, a description of the problem the app is going to solve, a description of current practices, a description of targeted users and a brief description of the structure of the report
- Market research for 4 similar apps
- A list of the planned features – each feature should be described and include who is responsible

- The data design (including a Class diagram for the data model and fake data for each class)
- Mockups of the application (minimum 5 features expected per group member).

Appendices:
- User Personnas
- Interviews summary
- Storyboard (hand drawn)
- Customer journey map
- User Flow
- Prototype Testing Summary

Individual marks (60%) will be awarded for the quality of the feature on each screen and their descriptions as well as the number of features presented.
Group marks (40%) will also be awarded for the professionalism of the report, the description of targeted users, and the consistency of the design overall.

Mockups of the application should be created using a suitable Wireframing/Prototyping software (Balsamic or Figma accepted, but Adobe XD prefered) and tested with real users. Describe changes made after the testing and export final version as images for each set of screens. For each set of screens please provide a description and justify any design decision. The project file (using your selected prototyping software) should also be submitted and include links between screens to simulate actions on links/buttons.

Assessment Part 2 – The Mobile App (35%)

The implementation will include the iOS app developed in xCode 10.3 that is useable on a selected number of iOS 12.0 or more devices (AutoLayout or constraints) and any additional implementation required by the features you choose to implement (database, web service, connection to external APIs). It is expected that the application with include a Splash Screen (also known as LaunchScreen) and be organized using MVC design pattern.

You need to submit a zip file containing the iOS App along with a ReadMe file listing all implemented features (naming the main developer) and describing any changes since the design document as well as all required steps for setup.

If you have used/developed any web service, also include steps to install and use it and any login details for the database used and any script for setting up your database. You must ensure that you create sufficient test data to fully test the application.You may need to also provide details of the location that should be used in the simulator in order to allow testing of the application.

Group marks will be awarded for the setup, UI/UX and implementation of the overall app. Individual marks will be awarded for the efficiency of the code, quality of comments and contributions to Trello. Progress of the implementation needs to be regularly updated on Trello and it is expected that each member post their contribution to the Trello Board at least twice per week (from 24th November to 9th January) – minimum of 15 relevant posts per member.

Project Defense (35%)

Please note that the project defense will include three parts:

Project Defense Part 1 – Project Demonstration (5%)

The project will be presented by the team to the client with each of the main features demonstrated and justified.

- Maximum time: 20min
- Each team member will have an equivalent speaking time and may be asked questions about any of the features

It is expected that all teams will be competing against each other to present their app. The winning team will be offered a paid internship with Relocent in January/February and may continue the development of this project as part of their final year IT Project.

Project Defense Part 2 – Critical Analysis (5%)

Part 2 of the project defense will require you to justify design and implementation choices for key features of your project.

Project Defense Part 3 – Project Features Updates (25%)

Part 3 of the project defense will be an individual practical implementation of updates or additional features to the app. You are required to bring with you the final version of your project to the project defense.

Project Document Marking Schemes

Assessment Part	Section	Marks	Notes
1 – Project Doc	Introduction	10	Description of background Description of the problem the app is going to solve Description of current practices Description of targeted users Descripotion of report
	Market Research	10	Screenshots, description and evaluation for 4 similar apps available on Apple AppStore or Google PlayStore
	Feature list and descriptions*	10	Please identify main developer and reviewer for each feature (extra features should be listed in order of priority)
	Data Design	10	Class Diagram Fake data for each class
	UI/UX Design*	50	Each feature can be described by multiple screens (Original hand-drawn mockups + Adobe XD). For each screen, describe and justify the elements of UI/UX you have considered.
	Conclusion	5	
	Trello board updates*	5	Minimum of 10 relevant posts per member
	Grades will be deducted if report is not of professional quality or if required appendices are missing		
	Total	100	

* section graded individually

Mobile App Marking Scheme

All code must be your own work and must follow industry standards (naming conventions, indentation, comments, cleanliness of code). However, if you use any other libraries, you must give credit to the author in the source code.

Assessment Part	Section	Marks	Notes
2 – iOS App	Setup	**10**	
	Main Feature 1	**10**	For each features, the quality and efficiency of code will be evaluated (not just whether the feature works).
	Main Feature 2	**10**	
	Main Feature 3	**10**	
	Main Feature 4	**10**	
	Main Feature 5	**10**	
	Main Feature 6	**10**	
	Extra Features		Bonus marks will be allocated for extra features developed
	Visual Design/UI/UX	**15**	The application of design principles & interaction design principles will be evaluated
	Project Management*	**15**	Minimum of 15 relevant posts per member
	Industry standards		Marks will be removed if industry standards are not followed or if libraries and code not your own is not referenced
	App stability		Marks will be deducted for each crash and compiler warning
	Total	**100**	

* section graded individually