



Islington college
(इरिलिङ्टन कलेज)

**CS6PO5 Final Year Project
Proposal
Canteen Application
2019-20 Autumn**

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Introduction

As a student in Islington college, I could not help but notice the lack of any working digital system at the time of proposal conception and crowd during lunch hours in the cafeteria. During busy days, usually the breaks between classes are not enough to wait for queued food list to be prepared in time. Some of the students even prefer to eat outside the college area, sometimes resulting in late arrival to class.

If kitchen staff could be informed beforehand the food items to be prepared, the preparation time could be utilized more efficiently and would even reduce the counter crowd.

The solution I propose as my final year project is a mobile application for the students and teachers to order food via their phones. If the food is pre-ordered, the cafeteria can mass produce the dishes, the waiting time is reduced considerably and even removes the unnecessary queue up at the counter.

Furthermore, the data collected through the application database can be run through different Prediction algorithms to determine customer satisfaction and approximation of food items sold for each day of the week. This will help estimate the raw ingredients with better accuracy, minimize food wastage, and pre-prepare food that are likely to be ordered often.

Expected Outcome and deliverables

At the end of the project following items will be delivered

- An Android application for end users to interact with the system.
- A web application for staffs to manage and monitor the content.
- User documentation for both android and web application.
- A database and machine learning server to process the accumulated data.

Possible Risks and Contingencies

The most obvious risk for the project is the mode of payment. It would be a hassle to implement a safe digital transaction and harder still to convince users of its security.

A workaround could be implemented using credit or debit system with the college account department or the cafeteria management department.

Methodologies

Considering a single workforce without a team, iterative incremental method would be a good approach to the project. The project will be divided into subsections, starting from the easiest portion, each subsection will be considered as an increment to the whole of the system. This method allows early release of initial product which can be used to accumulate data beforehand necessary later in the project. This method also accommodates implementation of any mid-coding spark of idea while also staying in the plan of action.

As for Testing, the method implemented will manual dynamic testing as there are less aspects to test for and various online modules are easier manually than automated tests. Since the method employed is iterative increment which will always have an initial product at hand, the testings can be done dynamically with product itself.

Each iteration will be tested through unit and integration tests in a white box approach as the system is being built by a single person acting as designer, developer, as well as the tester.

Resource Requirement

For the project, any identified necessary resources are listed below,

Functional Requirements

- A computer with connection to act as a server host.
- database (MySQL, with firebase notification,)
- Web browser to access the web application
- An android smartphone or a substitute thereof to access the mobile app.
- list of all Students to create users
- receipt printer(possibly)

System Requirements

- flutter / dart (for the main application)
- Laravel / Php (for back end web portal)
- Laravel middleware (for API)
- Google cloud messaging services with one signal for notification
- Android SDK version above 21

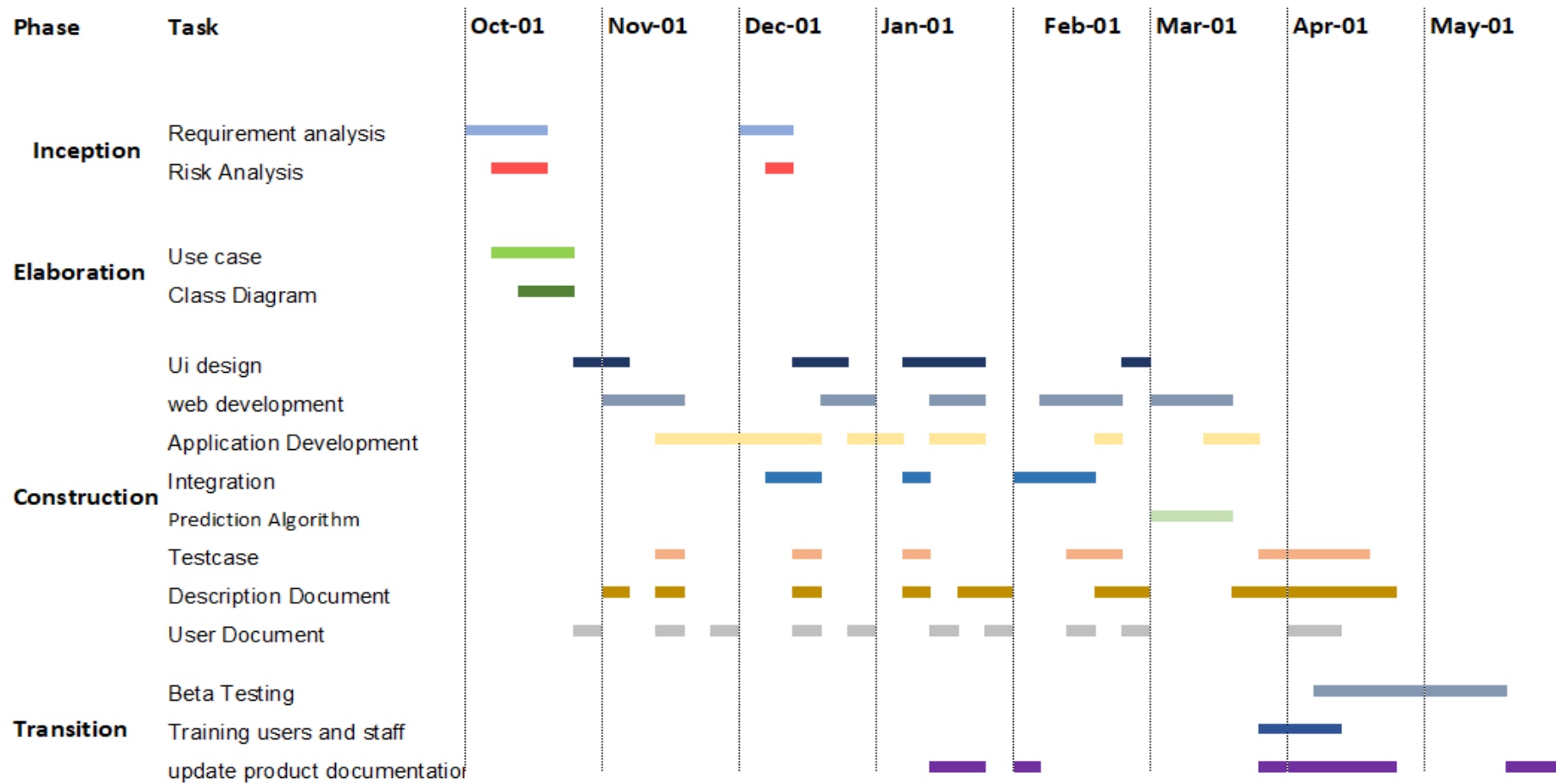
Work Table

Tasks	Details	Description	Approximate Duration
Initiation	Requirement analysis	Research the requirements for the application	1 weeks
	Risk analysis	Estimate and extrapolate a viable solution	1 week
	Use case and data models	Models for all components of the project	1 week
Database	inception	Plan an appropriately normalized database	1 week
	creation	Create and populate the database for initial testing	1 week
	integration	Integration of data base to the web app	1 week
Web app	Initial Web Application	Implementation of Laravel framework to create a front end for the web application	6 weeks
	Testing	Tests will be conducted on the web application	2 weeks
Mobile App	initial mobile application	Create a UI using flutter	4 weeks
	integration	Integration between database, Web and mobile app	4 weeks
Prediction Algorithms	Research and Implement	Research various algorithms and create an implementable	4 weeks
Final Testings	Unit Test	Test functionality of each unit.	2 weeks
	Integration Test	Test functionality of integration with each other.	2 weeks
Documentation	User Doc.	Instruction on using the system	4 weeks
	Description Doc.	Documentation on features and capabilities of the system	4 weeks

Milestones

Milestones	Details	Expected due
Entity diagrams	visualization depicting relation between necessary table	Oct-20
Databases	Creation of table models which can be translated to another desktop if necessary	Nov-01
API	Application interface necessary for web to mobile communication	Nov-10
login	user authentication with temporary data	Nov-15
menu	view available and create new menu	Nov-20
order	push orders to database through web API	Dec-10
history	view order history and balance	Dec-15
App	initial completion of mobile app	Dec-20
Web	add remaining features to web app	Jan-01
Notification	Add notification services to notify when meals are ready	Jan-10
UI	finalize UI	Jan-20
Eloquence	Optimize the code	Feb-20
Prediction algorithm	implement prediction algorithms	Mar-01
Beta Test	Initial release of the app	Mar-25
Documentation	Fully revised and completed documentation	Apr-20

Gant Chart (iterative incremental method)



Conclusion

With the current solution to the problem at hand, I put forward this proposal to create an applicable Web and Mobile application for my final year project before graduation. The software then created will provide easier option for ordering food in the cafeteria as well as provide an alternate payment method in case students forget their wallets. The canteen staff can better manage their stock with built in prediction algorithms and data visualization modules. Upon completion, the college canteen staff will have gained a new software while I gain the experience and satisfaction of a completed project.

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