

Masters Dissertation

“Smart Cafeteria” Adaptive And Interactive Mobile Application

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Outline of Thesis

1 Problem Statement

- Scenarios
- Objective
- Proposed Solution

2 Analysis

- Stakeholders
- Functional & Non Functional Requirements

■ Data Gathering & More Requirements

3 Design

- Desktop Prototype
- Mobile Prototype

4 Usability Evaluation

- Evaluation Methodology
- Evaluation Result

5 Conclusion



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4 Usability Evaluation

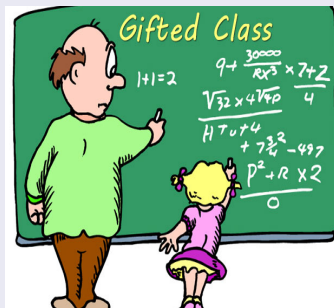
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Scenarios and Problem

Hungry Students and Busy Professors



- How to skip the long queue.
- How could know Today's menu.
- Appropriate menu for me(calorie, price).
- Collaborate and share feeling.
- How technology can help.



Objective

Services:

- Mensa Queue Skipper.
- Menu Finder.
- Menu Suggester and Dieting Adviser.
- Customized Menu creator.
- Lunch with Friends.

System should:

- Provide online cafeteria services.
- Provide dieting services to the students.
- Provide social collaboration services.



Proposed Solution

Create “Smart Cafeteria”

supported by

- web 2.0 system
- Smartphone application.

“Smart Cafeteria”

application should be

- Interactive.
- Adaptive.



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Stakeholders

- System Users.
 - Students.
 - Professors.
 - Researchers.
 - Universitys Administration Officer.
 - Universitys Technical Staff.
- System Administrator.
 - Cafeteria Staffs.



Functional & Non Functional Requirements

Functional & Non Functional Requirements

Functional Requirements

- 42 Functional Requirements

Non Functional Requirements

- Usability.
- Internationalization.
- Portability.
- Adaptability.
- Safety and security.



Data Gathering & More Requirements

Data Gathering & More Requirements

- Focus Group - 7 participants.
- Questionnaires.

Outcomes

- “Smart Cafeteria” is usefull application.
- Found 5 more functional requirement.
- Design UML (4 Use Case, Class Diagram, 4 Activity Diagram.)



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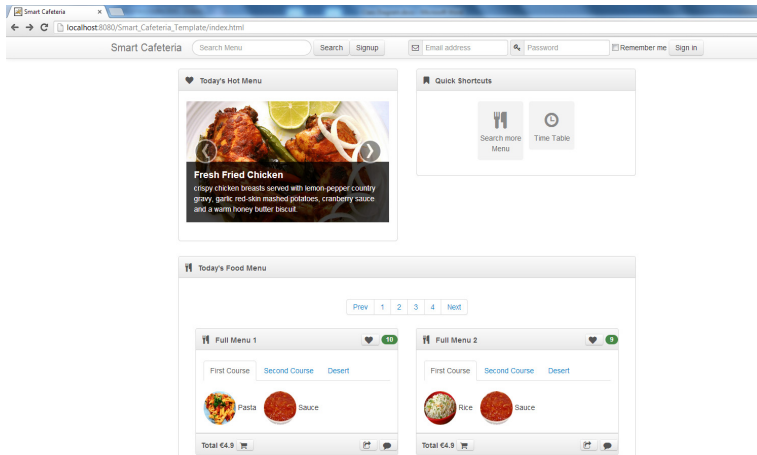
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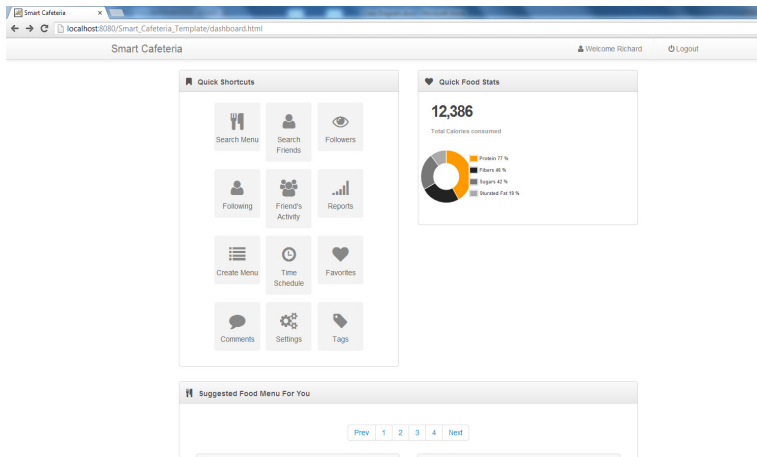
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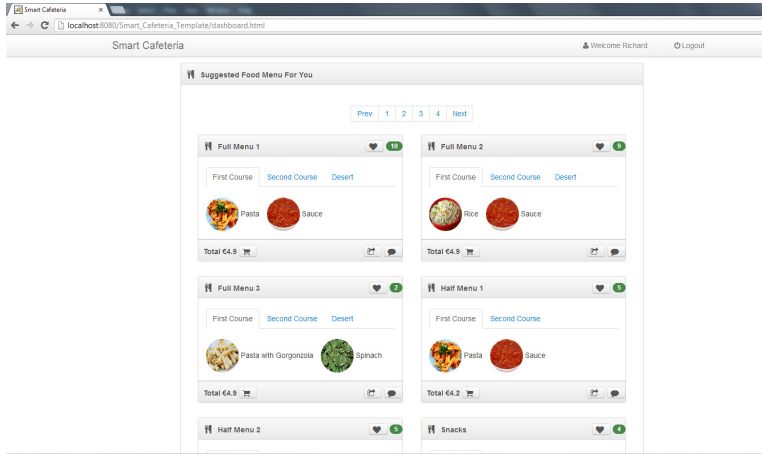
Desktop Prototype[Index Page]



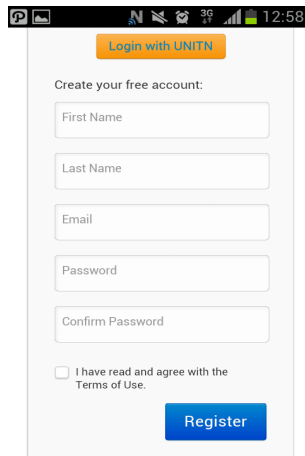
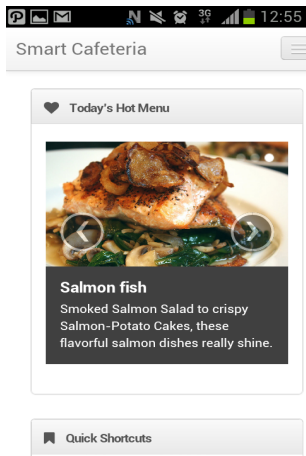
Desktop Prototype[User Dashboard]



Desktop Prototype[Suggested Food Menu]



Mobile Prototype



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Evaluation Methodology

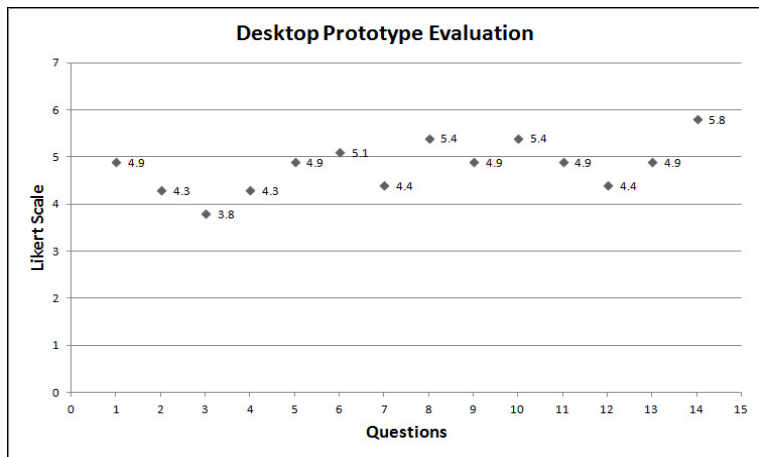
- Evaluation Methodology: User studies and questionnaire.
- 10 participants.
- Given them 9 tasks to perform.
- Given them 14 usability questions [likert scale: 1-7] to test.
 - usefulness
 - easy to use
 - learnability
 - Satisfaction
- Evaluation for Desktop and Mobile Prototype.
- Calculate Mean(μ) and Standard deviation(σ)

$$\sigma = \sqrt{\frac{1}{N} \sum_i^N (x_i - \mu)^2}$$

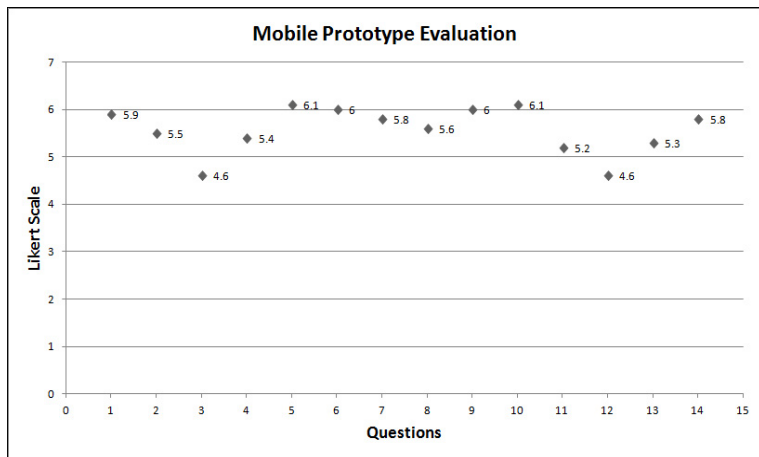
$$\mu = \frac{1}{N} \sum_i^N x_i.$$



Result for desktop Prototye



Result for Mobile Prototye



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Conclusion and Future Work

“Smart Cafeteria”

- Could solve the problems mostly [reduce queue time].
- is adaptive [its functionalities].
- is interactive [usability].

Future Work

- Build high fidelity prototype [full functional].
- Find best machine learning approach for adaptability.
- More User Study for better usability.

Resources

- Github Repository
<https://github.com/suptaphilip/Master-Thesis>



Any Questions



Thanks

