

# 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

- Future Work
- Questions



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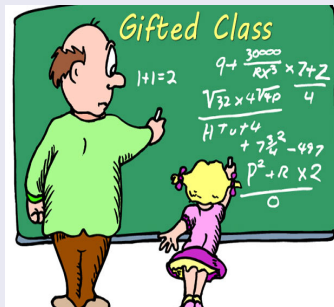
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# Scenarios and Problem

## 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 in the application.



# 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 Requirements & 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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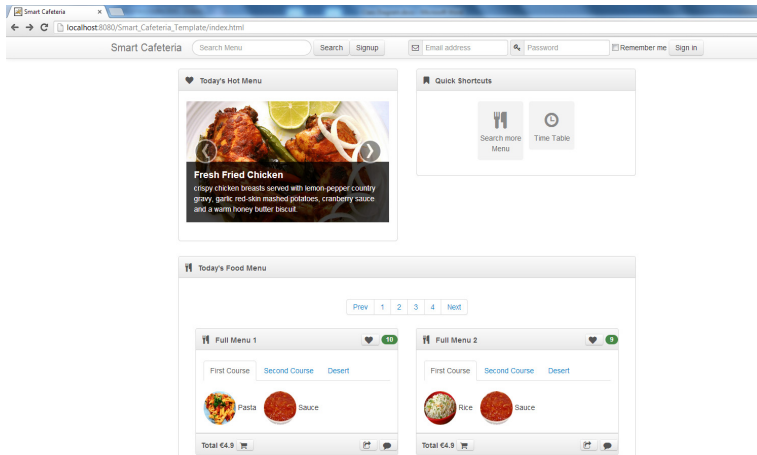
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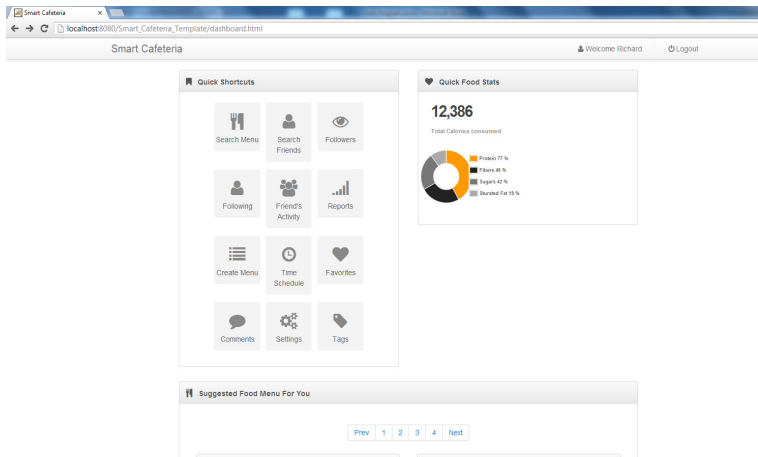
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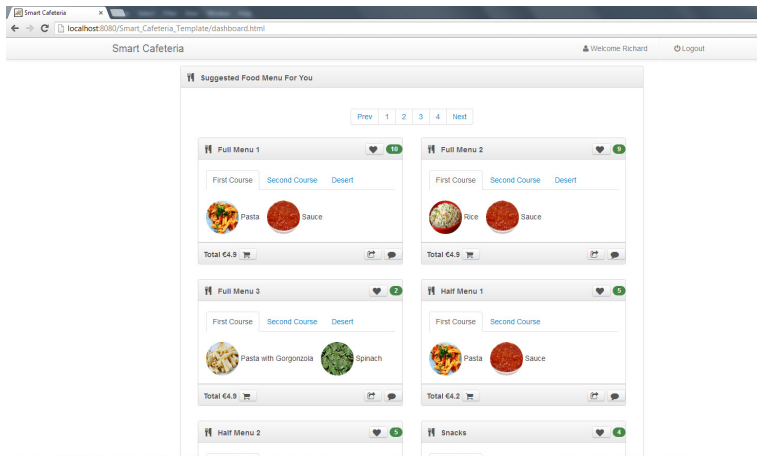
# Desktop Prototype[Index Page]



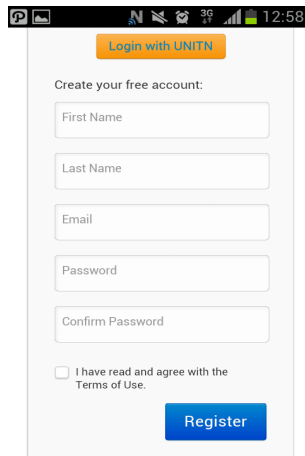
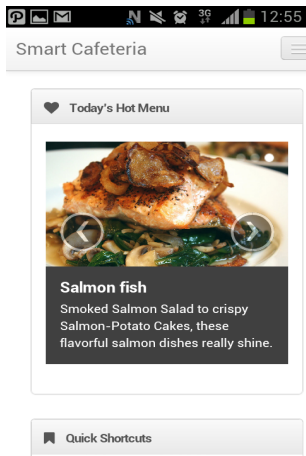
# Desktop Prototype[User Dashboard]



# Desktop Prototype[Suggested Food Menu]



# Mobile Prototype



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# Evaluation Methodology

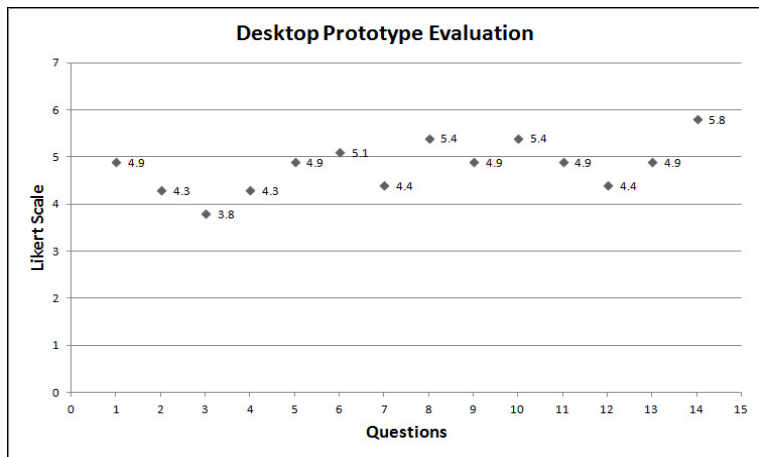
- Evaluation Methodology: User studies and questionnaire.
- 10 participants.
- Given them 9 tasks to perform.
- Given them 14 usability questions [likert scale: 1-7] to test.
  - usefulness
  - easy to use
  - learnability
  - Satisfaction
- Evaluation for Desktop and Mobile Prototype.
- Calculate Mean(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

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

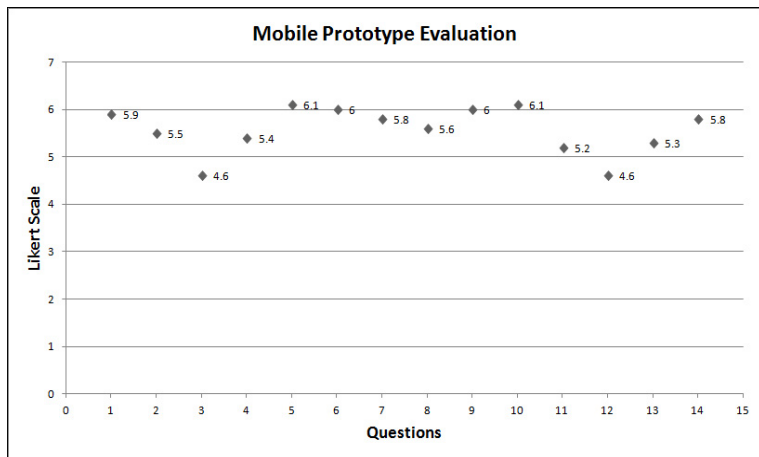
$$\mu = \frac{1}{N} \sum_i^N x_i.$$



# Result for desktop Prototype



# Result for Mobile Prototye



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## Future Work

- Build high fidelity prototype [full functional]
- Machine Learning for adaptability
- More User Study for better usability

## Resources

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



Any Questions



Thanks

