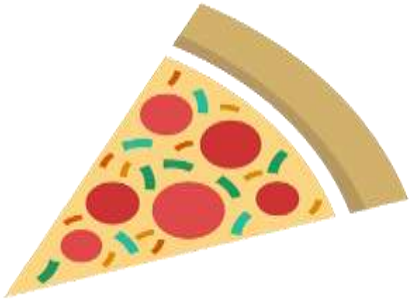
fast pizza: a UCD designed software product



Presented by:

Giorgio Cazzetta Lorenzo Mignone

fast pizza

- What is it?
- Why?

Requirement Analysis

- User Analysis

  Three types of users:

  – Pizzeria Customer
  – Pizza Delivery Boy
  – Pizzeria Owner

- Competition Analysis

Pizzeria Customer

- Persona

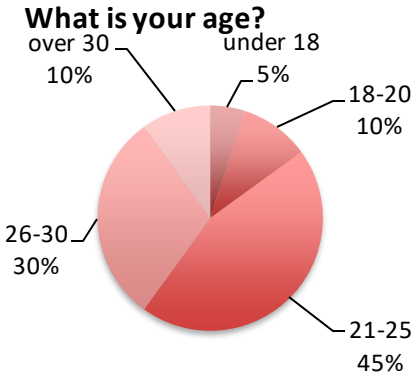
"Matteo is a 23 years old, he comes from Naples, but he stays in Rome during his studies at the Sapienza University. He shares the house with other two students. Most of the time he uses 4G mobile Internet for browsing via his phone or to install applications, most of application he uses are related to booking on-line or to purchase products on-line."

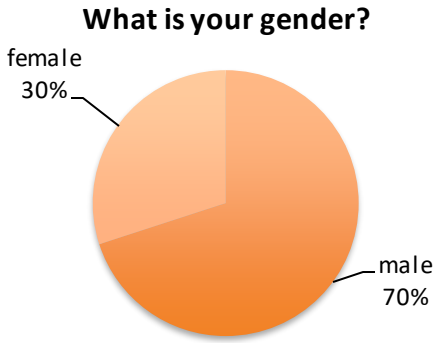
- Scenario

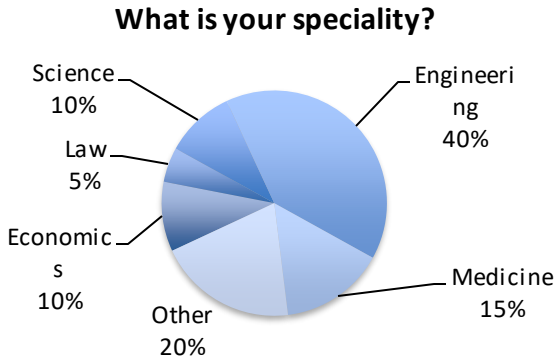
"It is Saturday night and Matteo invited his friends at home to watch the football match on TV. His friend are hungry, so Matteo decides to buy pizzas. No one wants to go out to take them because the guys don't want to miss the match, so they decide to book and have them delivered at home. Matteo starts choosing his favorite pizza and drink, and when they all have taken their decision, he commits the order. After they have eaten the pizzas, they decide to give a feedback on the service."

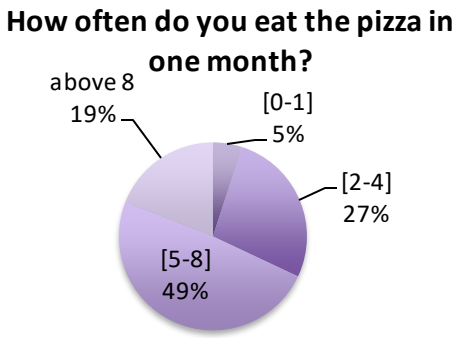
Pizzeria Customer

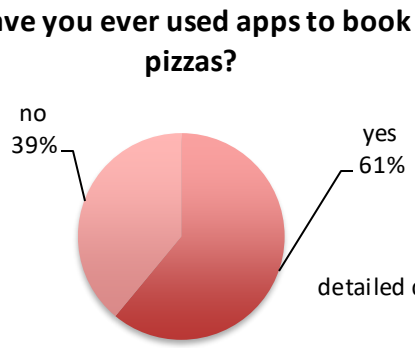
- Information obtained via questionnaire

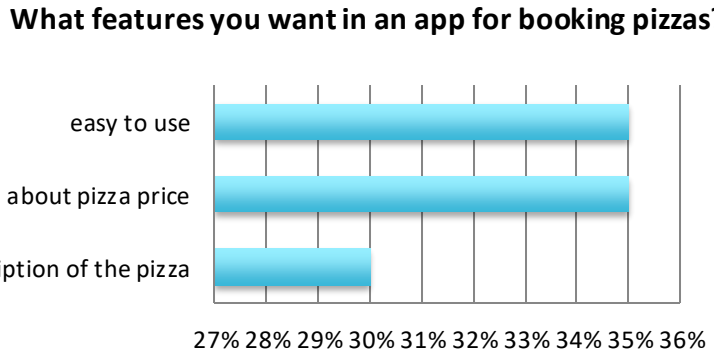












Pizzeria Customer

- Information obtained via interview
  - users love to eat pizza with friends and lowers watching films or matches
  - users prefer to take delivering the pizza at home rather than waste time to cook
  - users need to be updated on new offers

Pizza Delivery Boy

- Persona

"Luigi is a 25 years old, he stays in Rome during his studies at the Sapienza University. Most of the time he uses 4G mobile Internet for browsing via his phone or to install applications. The evening works as a delivery boy to support himselves to studies."

- Scenario

"Set order as delivered: after obtaining the id order by the pizzeria (Pizzeria Owner), he assures that the order destination is correct, he collects the money and set the id as delivered."

Pizza Delivery Boy

- Information obtained via interview
  - users need an easy and fast application
  - users need to have the change to give to the customer
  - users need to be informed about the route to take when leaving the pizzeria

Pizzeria Owner

- Persona

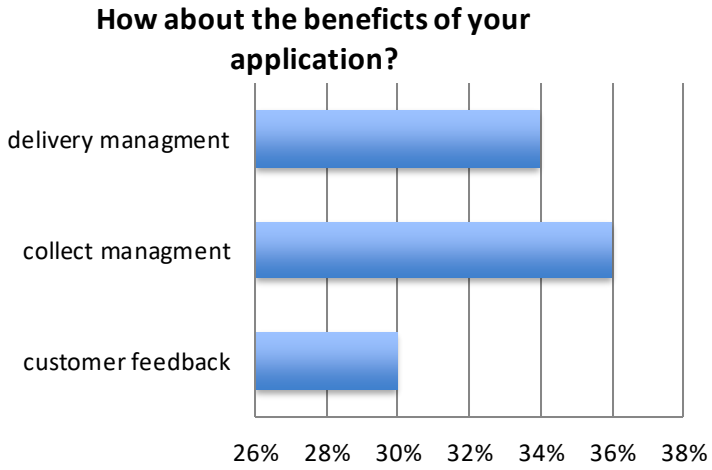
"Marco is a 45 years old, he is the owner of a pizzeria in Rome. He manages all aspects of the pizzeria (menu, opening time, staff, incoming and outgoing money, etc). He has a good experience in the management software."

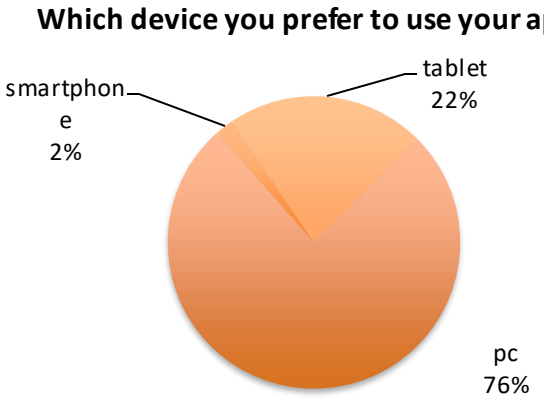
- Scenario

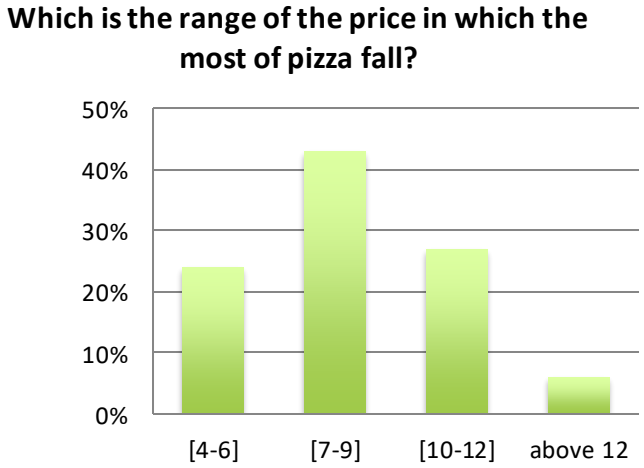
- *"Add a new product: add in the menu a new pizza type or a drink with related description and price"*
- *"Get reports (statistic on collects, statistic on sales of products, on customer feedback, statistic about employees)"*
- *"Add new employees (delivery boy, waiter, etc)"*
- *"List all the available pizzeria products"*
- *"Update pizzeria information (opening time, etc)"*

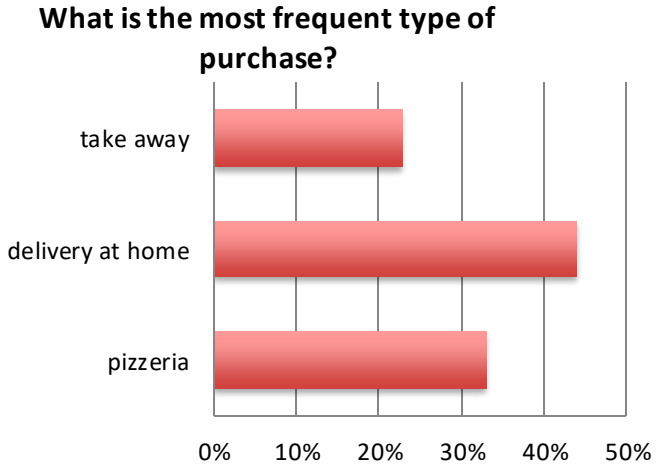
Pizzeria Owner

- Information obtained via questionnaire









Pizzeria Owner

- Information obtained via interview
  - they would like to send new promotions to the customers
  - they need to optimize the order delivery time
  - they need to get feedback about the degree of satisfaction of the service

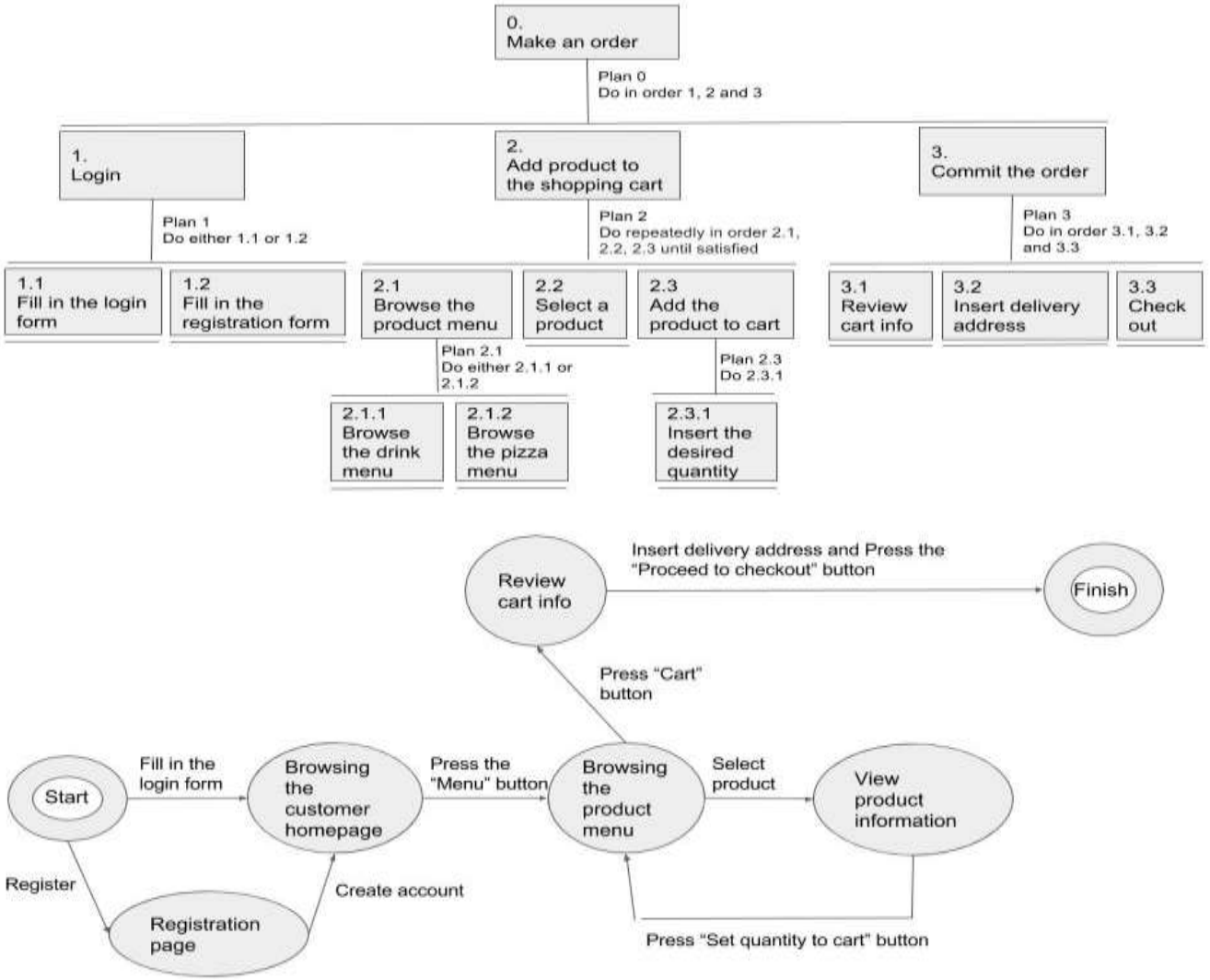
Competition Analysis

Competitor: Domino's Pizza

- Strengths:
  - Clear contrast between text and background
  - Choice of payment options: credit card / PayPal / cash on delivery / pick up
  - Products separated into different types to ease searching
  - Products arranged in a clear grid or list layout
  - Allows user to customize set food options
- Weaknesses:
  - No information on payment options until later stages of ordering
  - No information about price in the menu
  - Many step to complete an order (visualization of all product types)

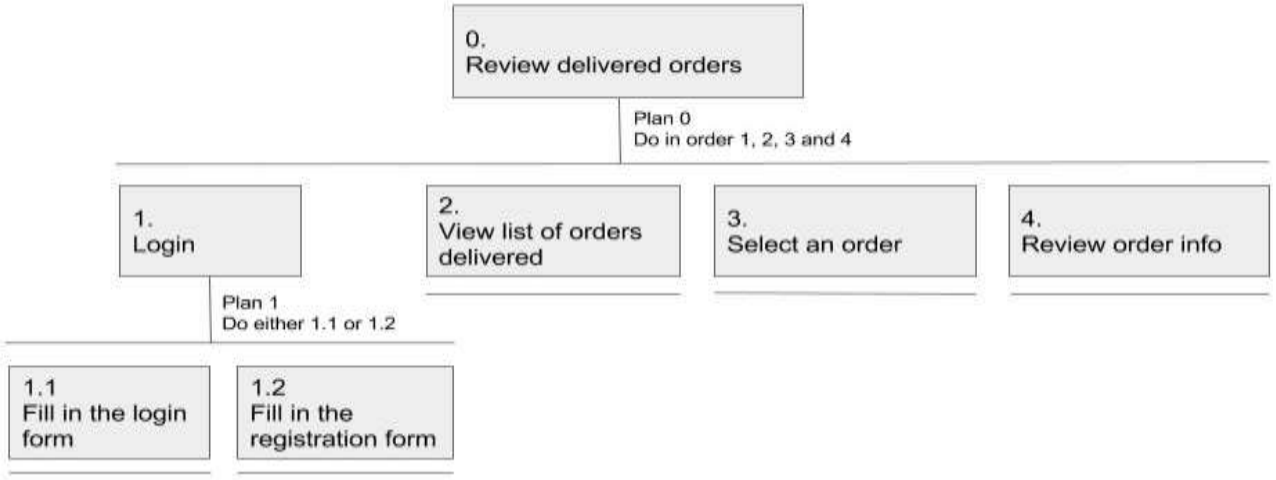
Customer HTA-STN

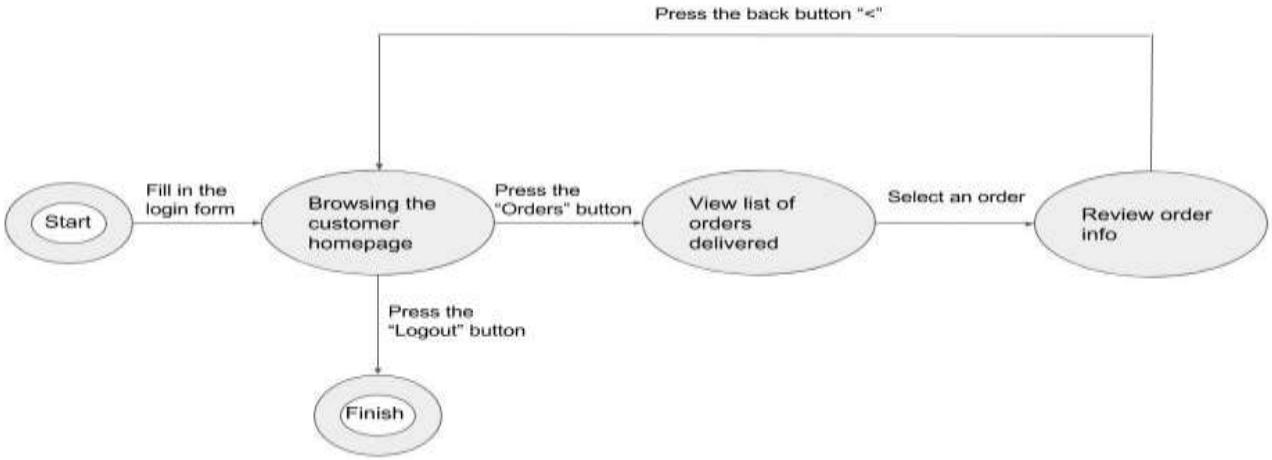
"Make an order" task



Customer HTA-STN

"Review delivered orders" task





First Prototype

- Prototype description
- Expert-based evaluation techniques
  - Heuristic Evaluation
  - Cognitive Walkthrough

First Prototype description

- The first prototype allows the following tasks:
  - to make an order
  - to view the delivered order

Expert-based evaluation

- Heuristic Evaluation
  - It is a formal method of usability analysis where a number of evaluators are presented with an interface design and ask to comment on it
  - Heuristic evaluations are one of the most informal methods of usability inspection in the field of human computer interaction
  - There are many sets of usability design heuristics which main goal is to identify any problems associated with the design of user interfaces

Jakob Nielsen's heuristics

Heuristic Evaluation of Our Project

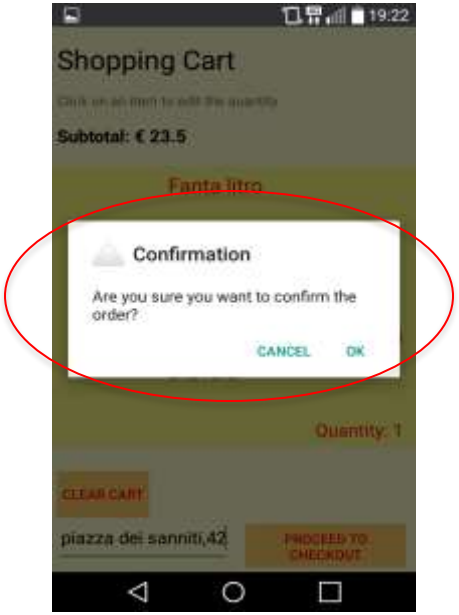
FRAME	HEURISTIC VIOLATED	SEVERITY	COMMENTS
Login, Registration, Shopping area	Visibility of System Status	3	Add info message and progress bar loading
Shopping area	Error Prevention	2	Make clear cart's status
Homepage	Error Prevention	3	Make clear user's status
Shopping area	Error Prevention	2	Insert confirmation
Welcome page	Recognition rather than Recall	3	It's not easy to login
List of pizzas page	Recognition rather than Recall	3	Lists of ingredientes should show the type pizza selected
Login, Registration, Shopping area	Help users recognize, diagnose and recover from errors	4	Immediate feedback with specific instructions is needed
All	Help and Documentation	4	Help is needed

Example of "Recognition rather than Recall"

- Recognition rather than recall: make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
  - Lists of ingredientes show the type pizza selected

Example of "Error Prevention"

- Error prevention: even better than good error messages is a careful design which prevents a problem from occurring in the first place.
  - Clear cart's status
  - Clear user's status
  - Confirmation dialogs for the most important operations



Expert-based evaluation

- Cognitive Walkthrough
  - It is a usability inspection method used to identify usability issues in interactive systems, focusing on how easy it is for new users to accomplish tasks with the system
  - It is task-specific, whereas heuristic evaluation takes a holistic view to catch problems not caught by this and other usability inspection methods
  - The method is rooted in the notion that users typically prefer to learn a system by using it to accomplish tasks, rather than, for example, studying a manual

Example "Make an order" task

- *Assumpion:* new user (not yet registered), the user books two different type of pizzas
- *Action-Response*
  - Act 1 Press the "Register" button
  - Resp 1 Display moves to "Registration" page
  - Act 2 Fill in the registration form
  - Resp 2 Display shows all the inserted information
  - Act 3 Press "Create account" button
  - Resp 3 Display moves to homepage
  - Act 4 Press the "Menu" button
  - Resp 4 Display shows the "Choose Menu" dialog
  - Act 5 Press the "Pizze" button
  - Resp 5 Display moves to "List of Pizze" page, allowing user to choose one of the available pizzas from results
  - Act 6 Press "+" button of the choosen pizza
  - Resp 6 Display the "Detail Pizza Information" page
  - Act 7 Insert the quantity and press "Set Quantity To Cart" button
  - Resp 7 Display returns to "List of Pizze" page
  - Act 8 Press "+" button of the choosen pizza
  - Resp 8 Display the "Detail Pizza Information" page
  - Act 9 Insert the quantity and press "Set Quantity To Cart" button
  - Resp 9 Display returns to "List of Pizze" page
  - Act 10 Insert the quantity and press "Set Quantity To Cart" button
  - Resp 10 Display returns to "List of Pizze" page
  - Act 11 Press the "Cart" button
  - Resp 11 Display moves to "Shopping Cart" page, showing all selected products
  - Act 12 Insert the delivery address and press the "Proceed To Checkout" button
  - Resp 12 Display shows the "Order Confirmation" dialog
  - Act 13 Press the "Confirm" button
  - Resp 13 The order is made and display returns to homepage

Second Prototype

- Prototype description
- User-based evaluation techniques
  - Think Aloud
  - Cooperative Evaluation
  - Controlled Experiment

Second Prototype description

- The second prototype allows the following tasks:
  - to make an order (browsing the pizzas and drinks menu)
  - to view the delivered order (getting detailed information about a specific order and the related products info)
  - *to give a degree of satisfaction feedback for the efficency of the delivery system*

User-based evaluation

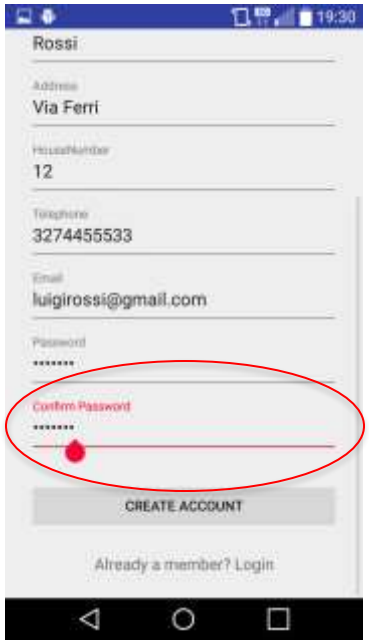
- Think Aloud
  - User performs a number of tasks and is asked to voice his thoughts about what he is doing and why, what he thinks is happening, etc.
  - The evaluator records the user's actions and any problem
  - Think-aloud has the advantage of simplicity, it requires little expertise to perform, and it gives a better understanding of the user's mental model
  - One of the problems with this technique is that it generates a large volume of information; moreover the information are necessarily subjective, and also might affect the task performance

Think Aloud to Our Project

User-based evaluation

- Cooperative Evaluation
  - It can be defined as a group of interacting individuals having some common characteristics brought together by a moderator, who uses the group interaction as a way to gain information about something
  - It takes advantage of the fact that people naturally interact and are influenced by others, providing data more quickly and at lower cost than if individuals were to be interviewed separately
  - It requires little preparation and is comparatively easy to conduct, and evaluator can interact directly with users
  - It has its own limitations though: it cannot give valid information about individuals, nor you can treat a group's views and perceptions as "random samples"; moreover, the produced data will be relatively chaotic, making data analysis more difficult

Cooperative Evaluation to Our Project



User-based evaluation

- Controlled Experiment
  - It is an experiment in which an observer tests a hypothesis by looking for changes brought on by alterations to a variable
  - In a controlled experiment, an independent variable is the only factor that is allowed to be manipulated, with the dependent variable as the factor that the independent variable will affect
  - The big advantage of a controlled experiment is you can eliminate much of the uncertainty about your results

Controlled Experiment for Our Project

- Problem

"Having implemented two distinct interface styles which differ for colors, sizes and positions of elements, which of them is easier to use?"

Style 1

Style 2

Controlled Experiment for Our Project

- Partecipants

  Sample of students following the defined customer user profile

- Variables
  - Independent variables: Interface Style

    two levels: Style1 Style2
  - Dependent Variables: Time to execute a task (in seconds)

- Hypothesis
  - Our hypothesis: users will take less time to perform the task using application with Interface Style1 than Interface Style2
  - Null Hypothesis: there will be no difference between using application with Interface Style1 and Interface Style2

- Experiment
  - Experimental method
  - User task: "make an order" using the appropriate interface style
  - Assumptions:
    - the user is already logged
    - the user must order two "Margherita" and one "Ceres 33cl"

ANOVA results

	A	B	C	D	E	F	G	H
1	Interface Style 1	Interface Style 2						
2	59	67						
3	61	62						
4	57	64						
5	67	63						
6	59	72						
7	55	68						
8	64	70						
9								
10								
11								
12	**ANOVA - Single Factor**							
13	Alpha	0,05						
14								
15	Groups	Count	Sum	Mean	Variance			
16	Column 1	7	422	60,2857142857143	16,9047619047619			
17	Column 2	7	466	66,5714285714286	13,952380952381			
18								
19	Source of Variation	SS	df	MS	F	P-value	F critical	
20	Between Groups	138,285714285732	1	138,285714285732	8,96296296296411	0,01119451	4,74722535	
21	Within Groups	185,142857142857	12	15,4285714285714				
22	Total	323,428571428571	13					
23								
24								

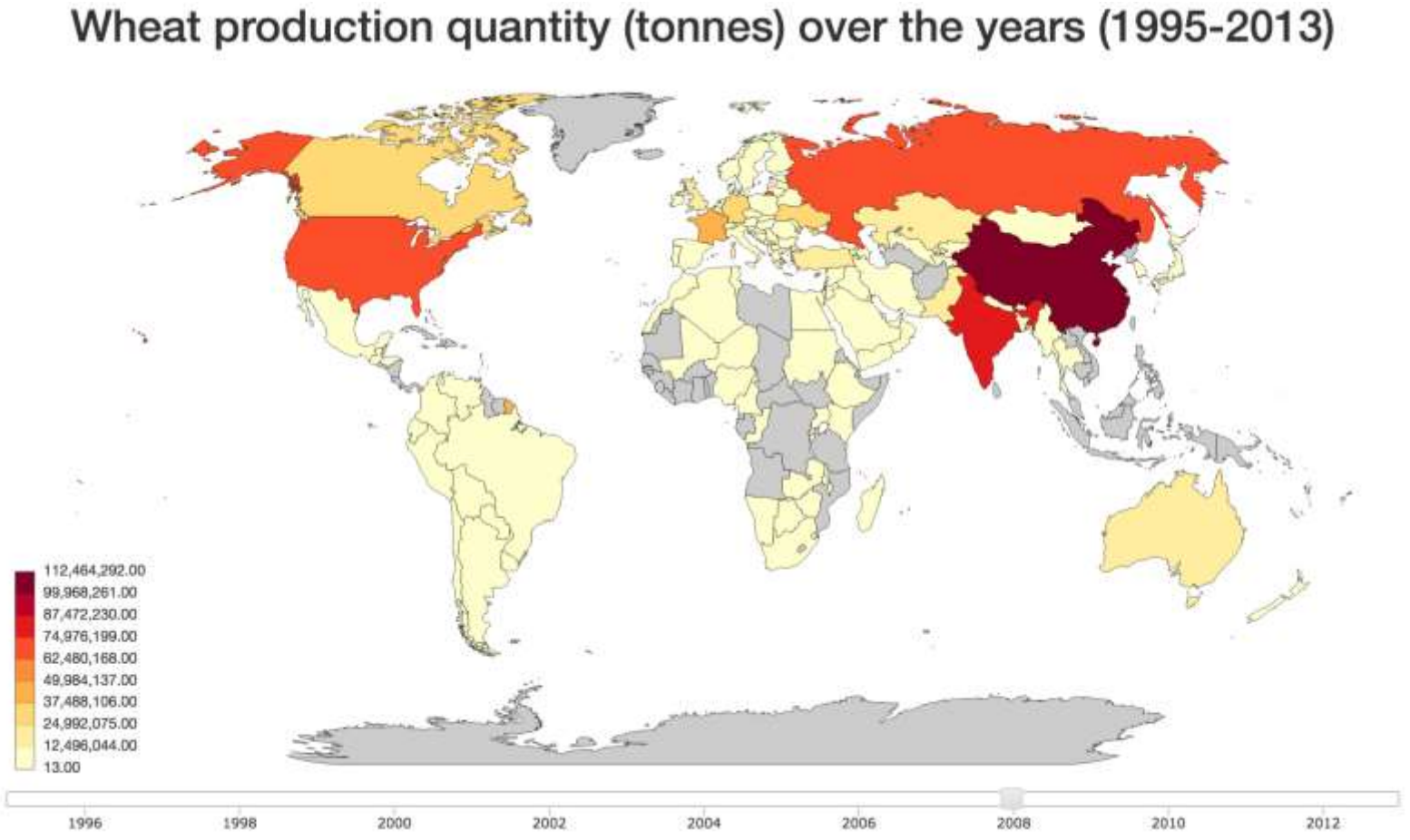
Conclusions and Future Work

What else?

Information Visualization

- Data:
  - Wheat production quantity over the years
  - Wheat Import/Export quantity

InfoVis – First Visualization



InfoVis – Second Visualization