

## LABORATORY RESOLUTION

*Members:*

Name	Surname	E-address	What the student has done
Dmitry	Chaltsev	dchaltsev@unibz.it	Each student has analyzed one particular child. Discussing together, we decided the criteria to split the two skeletons. (classifying and layering work has been done in the class together)
André	Malafaia	amalafaia@unibz.it	
Damiana	Salvalai	dsalvalai@unibz.it	
Heiedr	Jeffer	hjeffer@unibz.it	
Tajammul	Mustafa	tmustafa@unibz.it	

## Task Nr 1.

Persona 1	Persona 2
<p><b>Interests/activities:</b></p> <ul style="list-style-type: none"> <li>- Child likes playing active games outside</li> <li>- Child likes reading books</li> <li>- Child likes watching TV or cartoons with the family (brother and sister)</li> </ul> <p><b>Social skills:</b></p> <ul style="list-style-type: none"> <li>- Child likes discussing things over with friends</li> <li>- Child is helpful and sensitive to other classmates</li> <li>- willing to share child opinions on everything with others</li> </ul> <p><b>Computer usage:</b></p> <ul style="list-style-type: none"> <li>- Child has a computer and a tablet, but does not have a smartphone, child borrows the smartphone from the parents; child enjoys playing on these devices</li> </ul>	<p><b>Interests/activities:</b></p> <ul style="list-style-type: none"> <li>- Child does not like to read books as it takes too much effort to understand the written language</li> <li>- Child does not hear well, so if any game involves audio interactions, child misses out during such game</li> <li>- Child likes discussing about (tabletop and video) games with friends</li> </ul> <p><b>Social skills:</b></p> <ul style="list-style-type: none"> <li>- Child gets impatient with others, especially when it takes a long time for others to grasp the idea</li> <li>- Even if child is really supportive with classmate, child easily gets frustrated when child can not immediately come up with the right answer (problem reading)</li> </ul> <p><b>Computer usage:</b></p> <ul style="list-style-type: none"> <li>- Child has a computer and a tablet, but does not have a smartphone, child borrows a smartphone from the parents; child enjoys playing on these devices</li> </ul>

**LAB 2 Seminar in Human-Machine Interaction 2016**  
**LABORATORY RESOLUTION**

**By**  
**HDDAT Group**

Name	Surname	E-address	Participation of the team members
Heiedr	Jeffer	hjeffer@unibz.it	<p>We work together as a team in the class and outside the class by using Google Doc,whatsapp,etc.</p> <p>We discussed the solution for each tasks within the group and then further approached the Professor for approval.</p> <p><b>HDDAT methodology</b></p> <p>In HDDAT the students organized the work by doing the following steps:</p> <ul style="list-style-type: none"><li>- Discuss and debate the assignment.</li><li>- Figure out a general idea about the case study</li><li>- Solve the problem.</li><li>- Discuss and analyze the solution to improve it.</li><li>- Upload the solution to Google Doc</li><li>- We are maintaining our homework on Google docs so everyone can contribute his/her part</li></ul> <p><b>We certify this submission as our own original work completed in accordance with the Free University of Bozen-Bolzano Honor code</b></p>
Damiana	Salvalai	dsalvalai@unibz.it	
Dmitry	Chaltsev	dchaltsev@unibz.it	
André	Malafaia	amalafaia@unibz.it	
Tajammul	Mustafa	tmustafa@unibz.it	

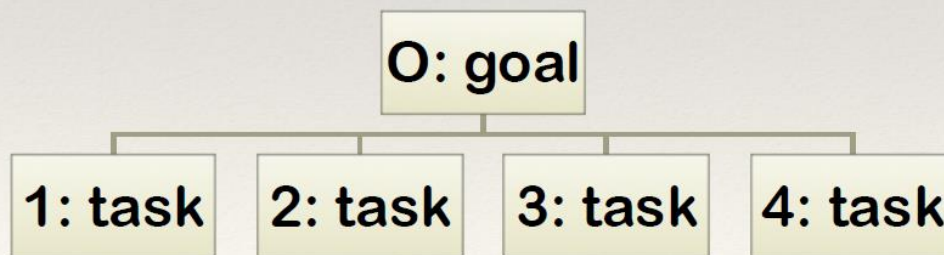
**Exercise 1: The Blank HTA**  
Simple Plan For Purchasing A Song

# Exercise 1

- ❖ Consider the blank HTA below: place the following tasks in it:

confirm order; locate song; enter order data; add song to the shopping basket; order song

- ❖ Write a simple plan for it



**Solution:**

- |                                    |                              |
|------------------------------------|------------------------------|
| 0. Purchasing a song               | plan for level 1: If regular |
| 1. Locate song                     | then 1,2,4 else 1,2,3,4      |
| 2. Add song to the shopping basket |                              |
| 3. Enter order data                |                              |
| 4. Confirm the order               |                              |

## Exercise 2 : HTA for Searching

Searching for a Safari Tech e-book At UniBZ Website

# Exercise 2

**Exercise:** go to <http://www.unibz.it/en/library/tools/ebooks.html> and visit it. Then complete and refine the following HTA for searching for a Safari Tech e-book:

0. In order to search for an e-book
  1. enter the UniBZ web site address
  2. locate the Safari Tech library link
  3. ... the Safari Tech link
  4. ... for e-book:
    - 4.1 enter search term ...
    - 4.2 ...
    - ...

Main platforms	
Title	
Beltz	Acquired packages (copyright year 1995-2011): Pädagogik Studium, Psychologie Grundlagen Format: Adobe Flash Player Download: No Printing: Yes, single chapter Copy: No ILL active: Yes, 1 chapter as hard copy. Availability in the catalogue: Whole collection has been imported. Subscription to the front file (2011-present) Format: PDF Download: Yes (reasonable portion) Printing: Yes (reasonable portion) Copy: Yes (reasonable portion) ILL active: Yes, in Italy only Availability in the catalogue: Manually updated (Last update: 28/10/2016) Subscription to the complete collection
CAB ebooks	Format: Docbook (XML) / ePub Download: Yes only for titles available in ePub format (registration required). Adobe Digital Edition or appropriate app for tablets and smartphones is required. Printing: Yes, single page or chapter (registration required). Copy: Yes, 4 pages at once. ILL active: Not allowed. Availability in the catalogue: Automatic update (about bimonthly). Access to the ebook collection of several publishers.
Darwinbooks [Il Mulino]	Format: Adobe PDF / ePub Download: 5 minutes preview of all titles by clicking on "read online" and

## Solution:

### 0. Search for an e-book

1. Enter the UniBz web site address
2. Locate the Safari Tech library link
3. Activate the Safari Tech link
4. Choose an e-book:
  - 4.1. Enter search term
  - 4.2. Download book
  - 4.3. Logout of the website

### Exercise 3 : Context scenario

Underline, Explain And Rewriting Context Scenario

## Exercise 3

### Context scenario

- ❖ **Underline** what is not appropriate in the nearby excerpt of a context scenario
- ❖ **Explain** why the underlined text is not appropriate
- ❖ Fix it by **rewriting** it

### John, a salesmen, enters client data

John and the client meet in his office.

The salesman enters the customer information in the system by typing it in, if the “new client” functionality of the system has been activated by means of the “new client” button.

The system checks if there is already an account that corresponds to the entered details. Otherwise the account will be created on the fly while the system verifies the client credentials by contacting the central police DB. [...]

### Solution:

**John, a salesman, enters client data** John and the client meet in his office. The salesman enters the customer information in the system by typing it in, if the “new client” functionality of the system has been activated by means of the “new client” button

[Context scenarios do not give specific information on the usage of the product, e.g., detailed functionalities for achieving a task -“asks for the fastest route” implies what the functionality is, but does not specify a specific manner for accomplishing it].

The system checks if there is already an account that corresponds to the entered details. Otherwise the account will be created on the fly while the system verifies the client credentials by contacting the central police DB.

[Context scenario do not talk of system’s behaviors invisible to users] The system checks and notifies John that the client is new. System verifies customer's details with the central police DB and creates the account on demand.



#### Exercise 4: Data analysis

Highlight the Goal (persona's main task), Examine the First-Level Tasks and Build a HTA

## Exercise 4

### Data analysis

1. **Read** the scenario excerpt, individually
2. Together, highlight the **goal**, that is, the persona's main task (root)
3. Together, highlight and examine the first-level **tasks**, and second-level tasks—stop there
4. Together, **build** a HTA with the plan language we used in class

### John, a seller, classifies orders with the system

Alex works in a small toy shop in Bolzano down-town. He is responsible for classifying orders with the system. Alex finds his work dull, and is bored to death with it.

Today a new stock of toys arrived in town. John reports the details of toys in the system: price, sector, quality condition.

Alas, a toy is damaged, its quality conditions are insufficient. Alex issues a complaint through the system concerning the quality conditions of the toy...

### Alex, a seller, classifies orders with the system d

Alex works in a small toy shop in Bolzano down-town. He is responsible for “**classifying orders with the system**”. Alex finds his work dull, and is bored to death with it.

Today a new stock of toys arrived in town. John reports the details of toys in the system: price<sup>1</sup>, sector<sup>2</sup>, quality condition<sup>3</sup>.

Alas, a toy is damaged, its quality conditions are insufficient. Alex issues a complaint through the system concerning the quality conditions of the toy...

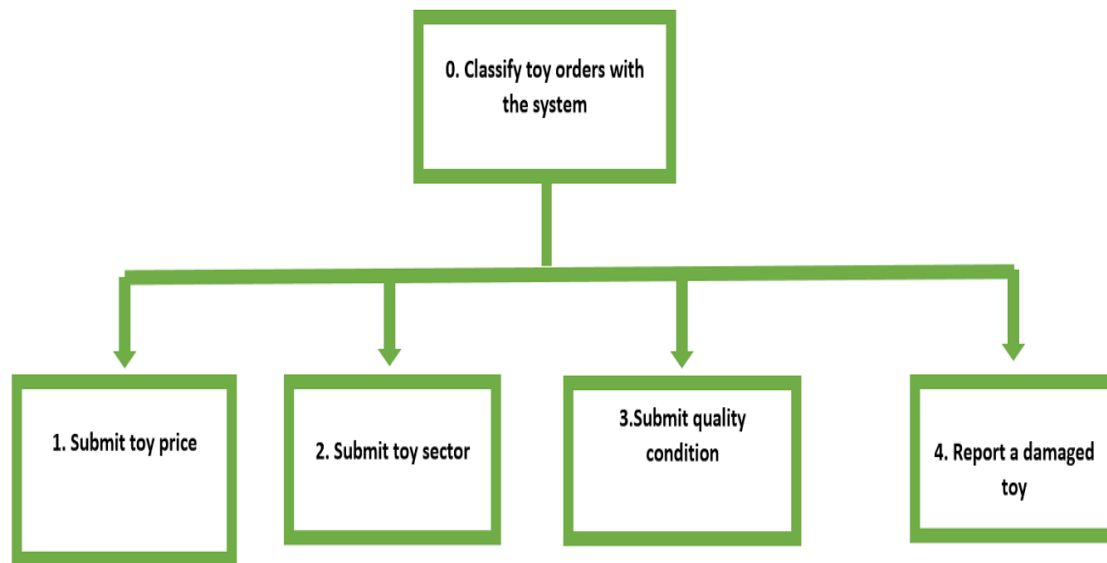
### HTA Textual Analysis

#### 0. Classify toy orders with the system

1. Submit toy price
2. Submit toy sector
3. Submit quality condition
4. Report a damaged toy

## HTA Graphical Analysis

Steps 0,1,2,3 if correct else 0,1,2,3,4



# Human Machine Interaction

Seminars

Lecturer: Rosella Gennari

**<http://www.inf.unibz.it/~gennari/shmi.html>**

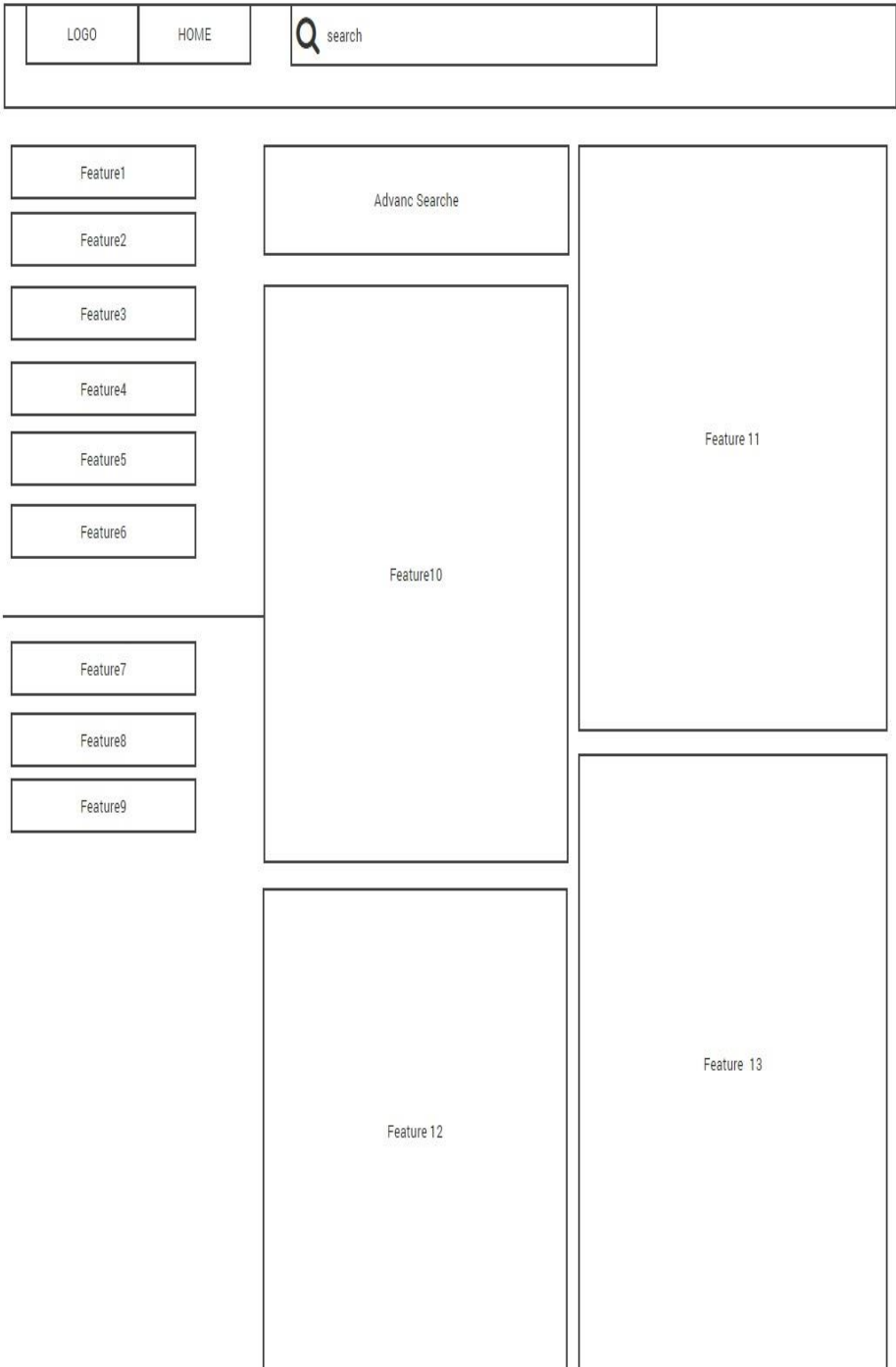


Name	Surname	E-address	Participation of the team members
Heiedr	Jeffer	hjeffer@unibz.it	<p>We work together as a team in the class and outside the class by using Google Doc,whatsapp,etc.</p> <p>We discussed the solution for each tasks within the group and then further approached the Professor for approval.</p>
Faheem	Shahid	hshahid@unibz	
Tajammul	Mustafa	tmustafa@unibz.it	
			<p><b>Group methodology</b></p> <p>The students organized the work by doing the following steps:</p> <ul style="list-style-type: none"> <li>- Discuss and debate the assignment.</li> <li>- Figure out a general idea about the case study</li> <li>- Solve the problem.</li> <li>- Discuss and analyze the solution to improve it.</li> <li>- Upload the solution to Google Doc</li> <li>- We are maintaining our homework on Google docs so everyone can contribute his/her part</li> </ul> <p><b>We certify this submission as our own original work completed in accordance with the Free University of Bozen-Bolzano Honor code</b></p>

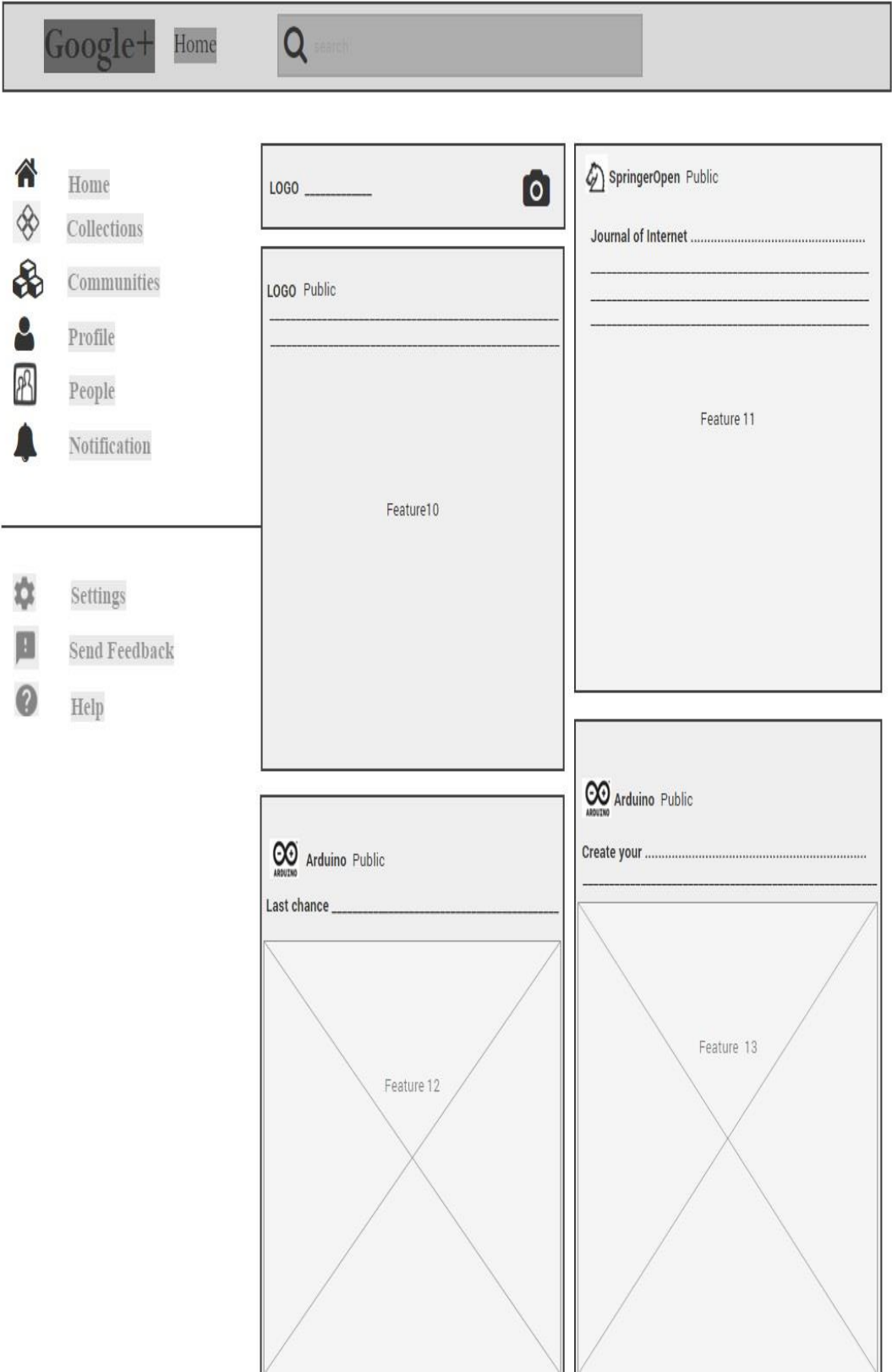


Exercise 1

LEVEL # 01 Wireframe (web type prototype)



LEVEL # 02 Wireframe



**Exercise 2**  
**PAGE #01 LEVEL # 01 Wireframe (web type prototype)**

LOGO

HOME

Q

Seach

Label

Feature 1

Feature 2

Feature 3

Text

Label

Button

Button

Button

Label

Button

Button

Button

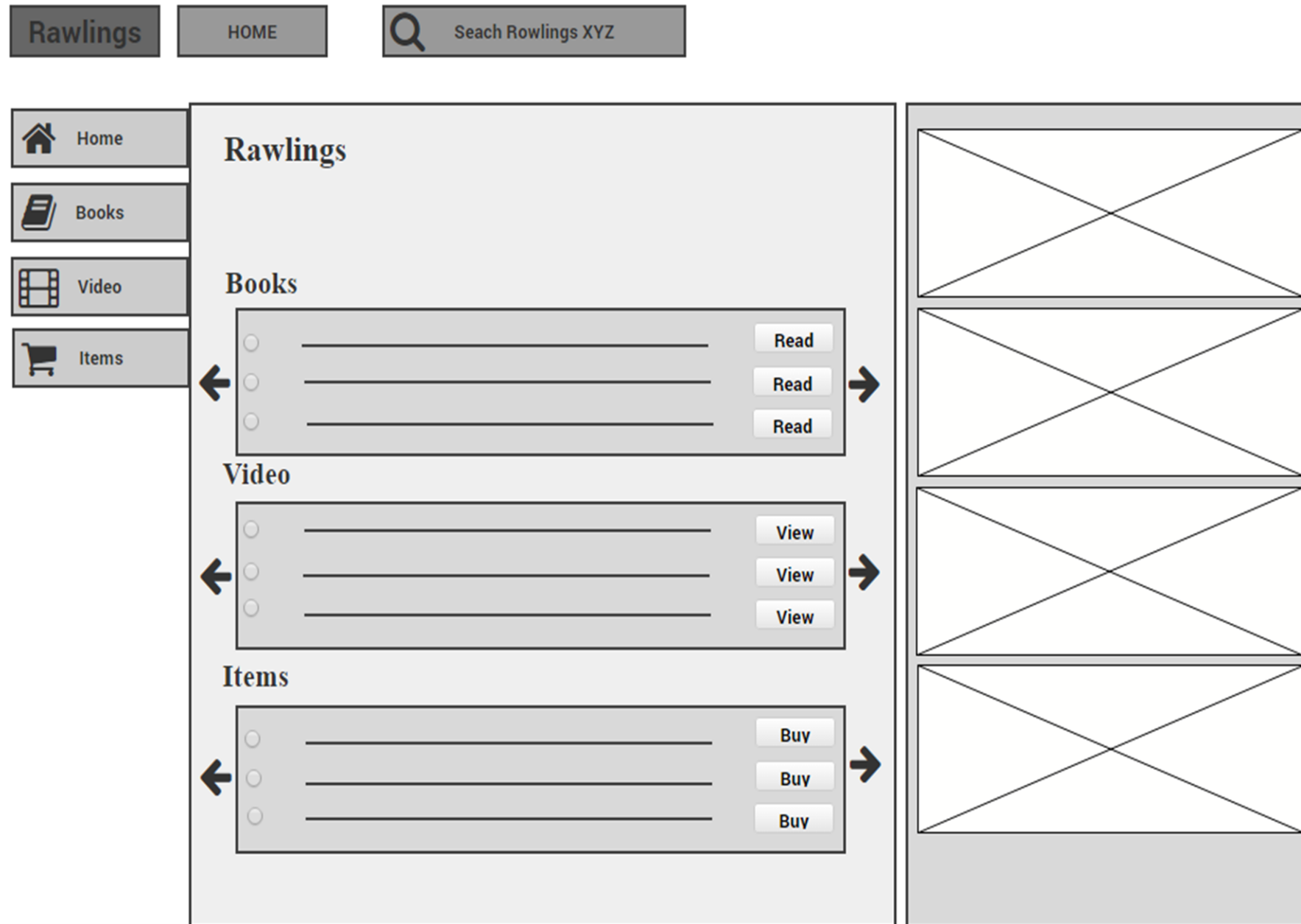
Label

Button

Button

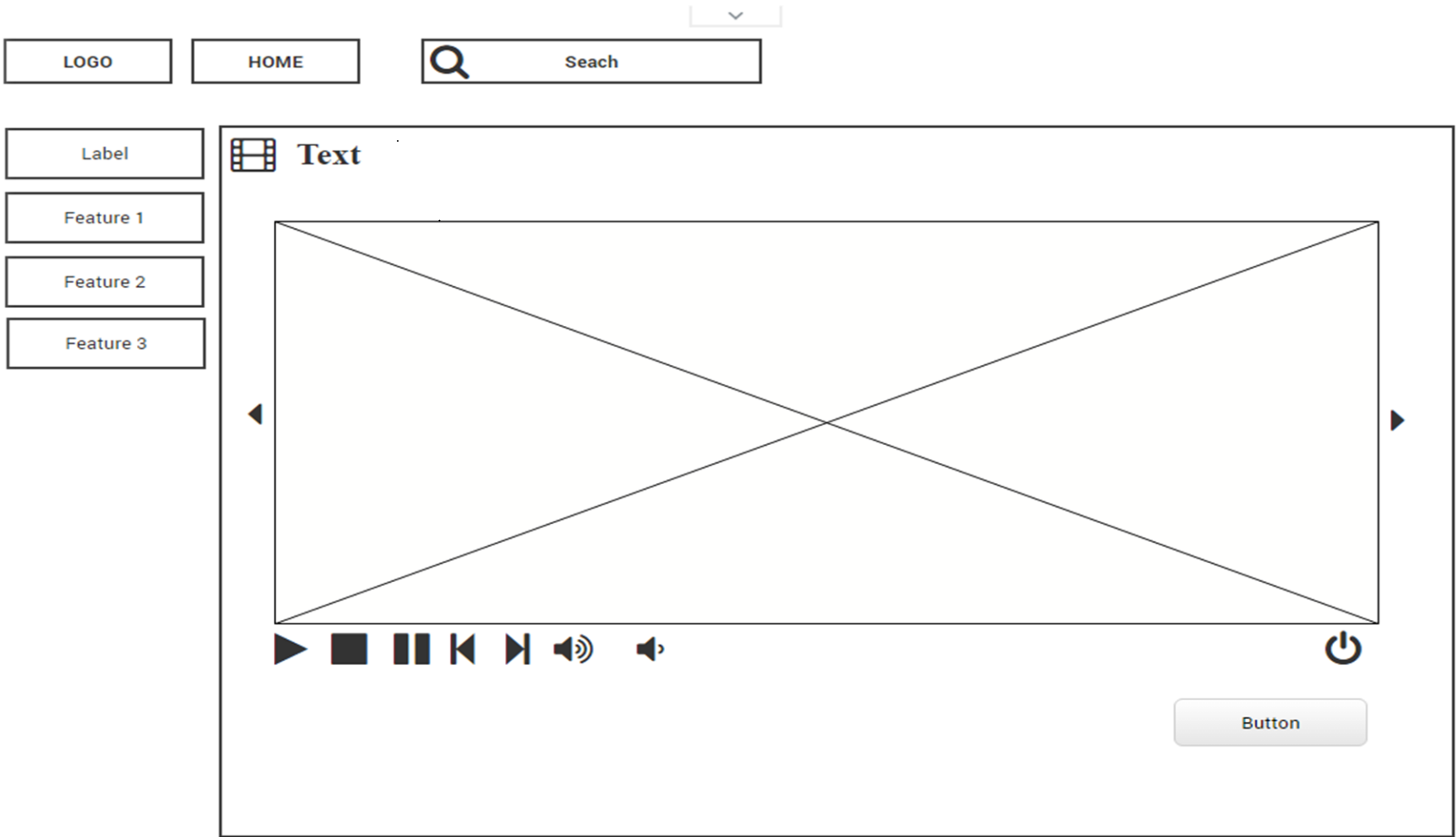
Button

## PAGE #01 LEVEL # 02 Wireframe (web type prototype)

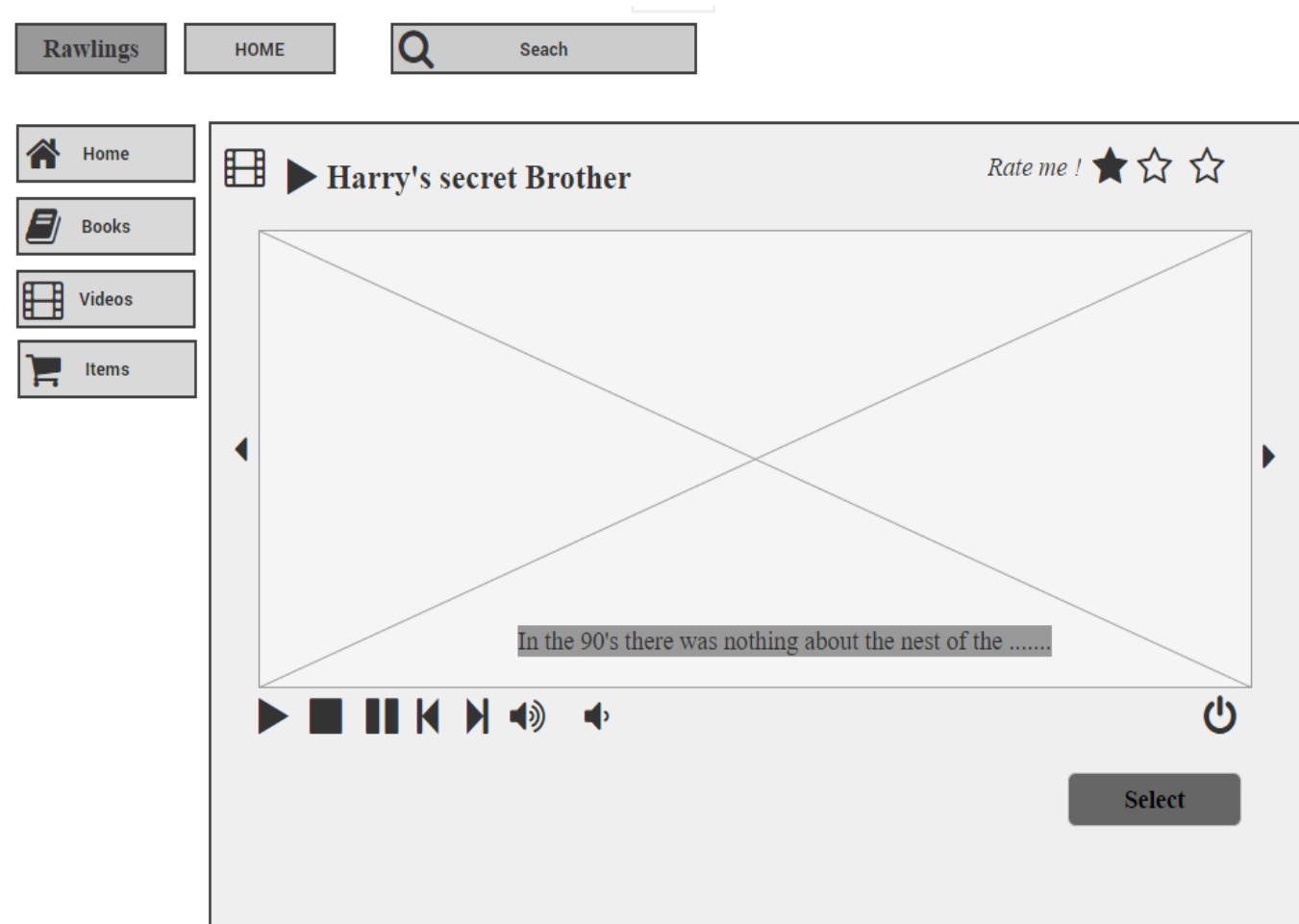




PAGE #02 LEVEL # 01 Wireframe (web type prototype)



## PAGE #02 LEVEL # 02 Wireframe (web type prototype)



PAGE #03 LEVEL # 01 Wireframe (web type prototype)

LOGO

LOGO

Q

Seach

LOGO

Feature

Feature

Feature

LOGO

LOGO

€

Select

LOGO

€

Select

LOGO

€

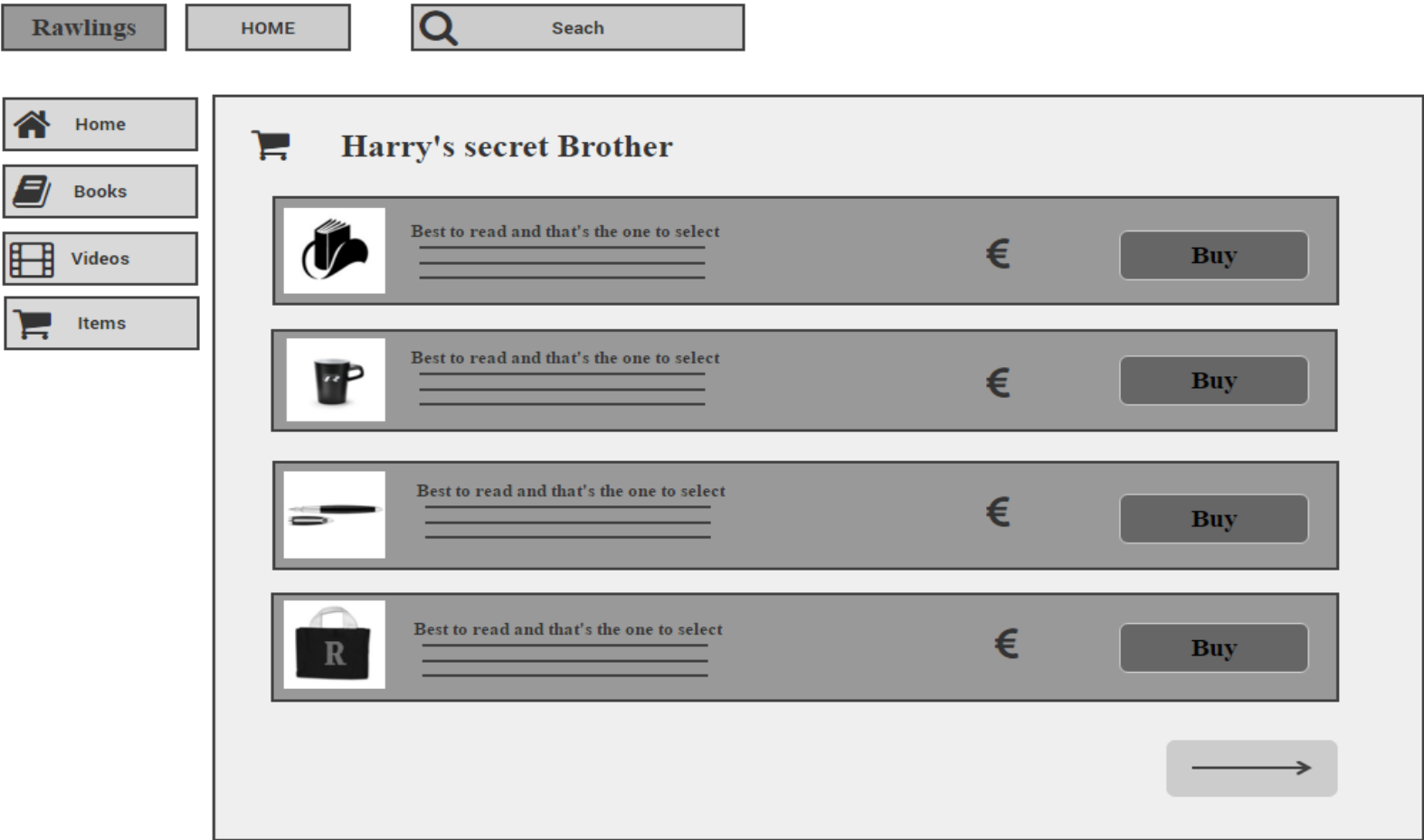
Select

LOGO

€

Select

PAGE #03 LEVEL # 02 Wireframe (web type prototype)

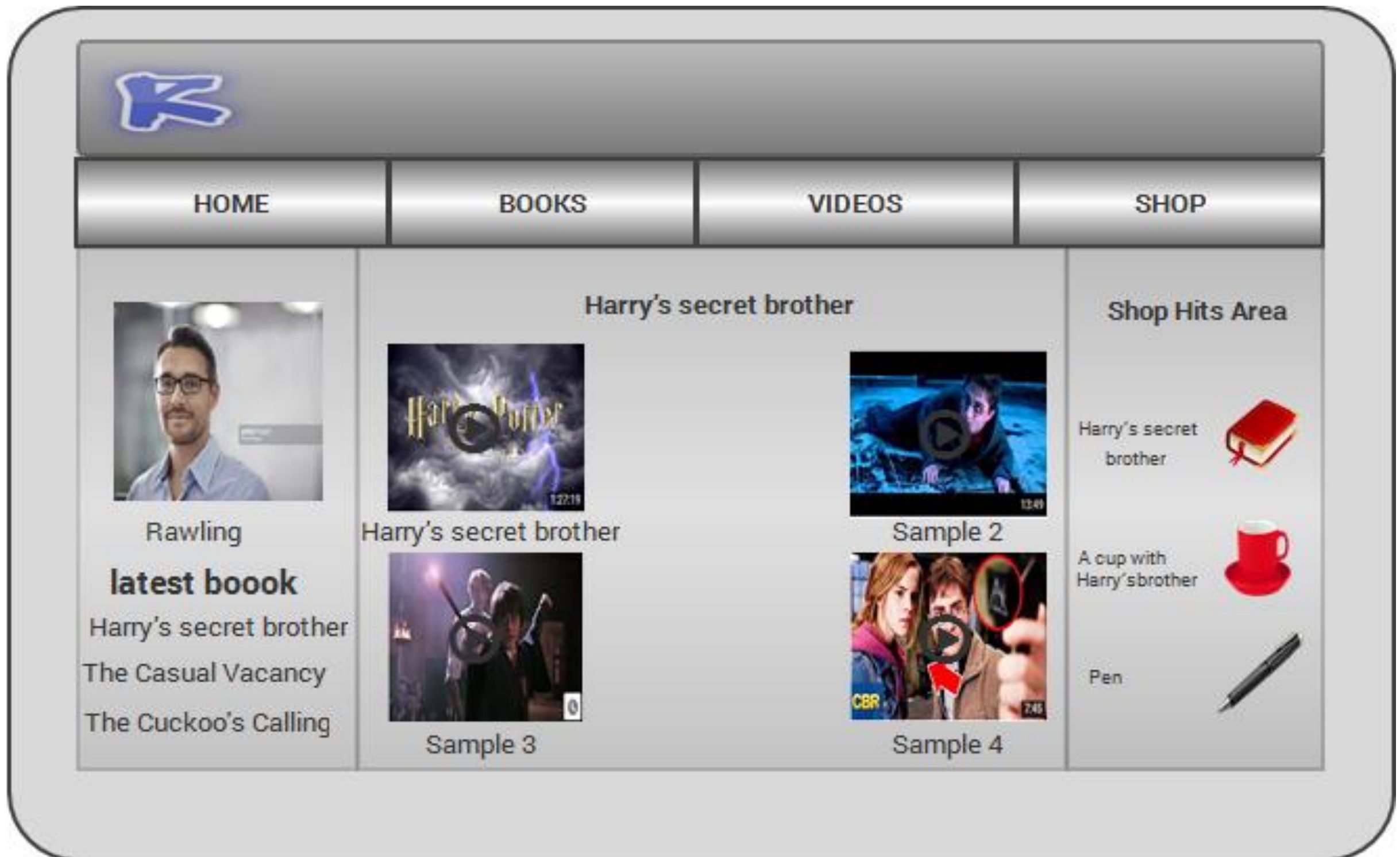


## LAB 5

### PART I

Prototyping - Exercises - From Wireframes 2 to 3

## Exercise 1: from a level-2 to a level-3 wireframe





# PART II

Cognitive Walkthrough - Exercise - Evaluation

# Exercise 2: evaluation form

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Task 1	Type in departure and arrival stops	
	<b>Question 1</b> <i>Would I know <b>what</b> to do at this step?</i>	<b>Question 2</b> <i>If I do the right thing, as the user, do I know that I have made <b>progress</b>?</i>
Answer	Yes	
Explanation	<i>if no, list and explain the encountered issues</i>	<i>No, There aren't any transport modes for bus for the required route</i>

Task 2	Enter in the departure time	
	Question 1 <i>Would I know <b>what</b> to do at this step?</i>	Question 2 <i>If I do the right thing, as the user, do I know that I have made <b>progress</b>?</i>
Answer	Yes	Yes
Explanation	<i>if no, list and explain the encountered issues</i>	<i>if no, list and explain the encountered issues</i>

Task 3	Hit the advanced search button	
	Question 1 <i>Would I know <b>what</b> to do at this step?</i>	Question 2 <i>If I do the right thing, as the user, do I know that I have made <b>progress</b>?</i>
Answer	Yes	Yes
Explanation	<i>if no, list and explain the encountered issues</i>	<i>if no, list and explain the encountered issues</i>

Task 4	Check minimum number of connections	
	<b>Question 1</b> <i>Would I know <b>what</b> to do at this step?</i>	<b>Question 2</b> <i>If I do the right thing, as the user, do I know that I have made <b>progress</b>?</i>
Answer	Yes	Yes
Explanation	<i>if no, list and explain the encountered issues</i>	<i>if no, list and explain the encountered issues</i>

Task 3	Hit the Search Button	
	Question 1 <i>Would I know <b>what</b> to do at this step?</i>	Question 2 <i>If I do the right thing, as the user, do I know that I have made <b>progress</b>?</i>
Answer	Yes	Yes
Explanation	<i>if no, list and explain the encountered issues</i>	<i>if no, list and explain the encountered issues</i>



# PART III

Cognitive Walkthrough - Exercise - Evaluation

## Exercise 3: **individual** part form

GROUP NAME		<i>Tajammul, Mustafa, Student ID</i>	
Heuristics	Matched?	Issues per heuristic	
Match	<i>No</i>	<i>The system must talk about items usually seen in a museum like prizes/awards, galleries, portraits of the character hence making this information appear in a natural and logical order.</i>	
Recognition rather than recall	Yes		

User control and freedom	No	<i>There are no system functions that support forward and backward of selections. An emergency exit is needed (Internal locus of control)</i>
Flexibility and efficiency	No	<i>Shortcuts for experienced and non-experienced users cannot be seen other than the user can quickly get to the most frequently accessed information for e.g. contact information.</i>
Aesthetics and minimalism	No	<i>Dialogues within the system contain irrelevant and rarely needed information. Additionally, different phrases are leading to the same semantics. Consistency and standards are not seen (Contact information).</i>

GROUP NAME	<i>Faheem, Shahid, Student ID</i>	
Heuristics	Matched?	Issues per heuristic
Match	No	There should be images/icons representing objects for DVDS/VHS. There are objects that we usually don't see in real museums
Recognition rather than recall	No	There is no standard symbols and icons.

User control and freedom	No	No visible navigations to jump back and go to actual goal
Flexibility and efficiency	No	<p>Eye movement is not obvious and sequential for both experienced and inexperienced user.</p> <p>Given Information is much congested and not well managed in sections/categories.</p>
Aesthetics and minimalism	No	<p>Extra information (museum address) repeated most. It should be hide until user wants to see.</p> <p>Lack of visual layouts of store items of museum.</p>

# Exercise 3: **group** part

GROUP				
Heuristics	Issues per heuristics	Agreement proportion/ # of evaluators	Frequency	Severity rating
Match	<i>No real items mimicked</i>	<i>2/2</i>	<i>Common</i>	<i>0</i>
Recognition rather than recall	<i>Standard symbols missing to convey information (least agreed)</i>	<i>1/2</i>	<i>Rare</i>	<i>2</i>
User control and freedom	<i>No control on the flow of system</i>	<i>2/2</i>	<i>Common</i>	<i>1</i>



Flexibility and efficiency	<p><i>Eye movement is not obvious and sequential for both experienced and inexperienced user.</i></p> <p><i>Shortcuts for experienced and non-experienced users cannot be seen</i></p>	<p><i>2/2</i></p> <p><i>1/2</i></p>	Common	2
Aesthetics and	<i>Irrelevant and repeated information</i>	<i>2/2</i>	Common	0



## Abstract

This document contains the solutions of lab 6 and Lab7, SHMI Class 2016/2017.

Prepared by

Heider Jeffer

## SHMI: Lab 6

### Exercise 1.1

#### In our resolution

3. report what the average is (mean or median or...) and its approx. value

The mean is 44

4. explain how it should be calculated (briefly)

We convert times into log times rounded to 2 decimal places. Next, we compute the mean and standard deviation of log times. Now we compute the exponential of the mean of log times to obtain the geometric mean of the input times; do the same for the standard deviation

5. report approx. the 95%-confidence interval

35-61

6. explain how it should be calculated (what distribution)

Compute the t-confidence interval (t-CI) for the geometric mean, and take the exponential of the bounds.

We use CONFIDENCE.T(alpha; standard deviation; size). Alpha is given by  $\alpha = (1 - (95\%/100))$

7. discuss results

confidence interval is large. I am 95% confident that the mean will lie between the interval 35 and 61. Since sample size is small there is a large margin of error. The standard deviation is high too. So confidence interval is large.

## Lab6

### Exercise 1.2

3. report what the likely average is (mean, median or...) and its value from the plot

the likely mean is 4.3

4. report the 95%-confidence interval

4.1 0– 4.6

5. explain how it should be calculated (what distribution)

$$\bar{x} \pm t \cdot \frac{s}{\sqrt{n}}$$

- where  $\bar{x}$  is the sample mean
- $n$  is the sample size
- $s$  is the sample standard deviation
- $t$  is the critical value from the t-distribution for  $n-1$  degrees of freedom (df) for the considered confidence level

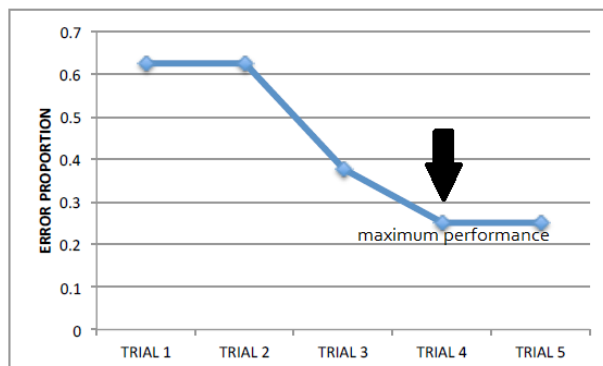
The following is a t-distribution

#### 6. discuss results

confidence interval is large. I am 95% confident that the mean will lie between the interval 4.1 and 4.6. Since sample size is  $> 20$  and is large there is a small margin of error. The standard deviation is low too. So, confidence interval is small.

#### Exercise 1.3

Learning takes time, as well as storing data in long-term memory. We have no information how the session between trials was conducted. Whether there were breaks (usually with distractions), without breaks and with gaps of at least a day. Trail 1 had an error proportion of approx. 0.61. Trail 2 had no change on the results. Trail 3 shows a steep decline in the error proportion from 0.61 to 0.39. It further went down to 0.25 in trial 4. The curve becomes flatter. Until in trial 5 we see no change. The gradient is 0.



2. The difference between the highest and the lowest y-values is  $(0.61 - 0.25) = 0.36$

The minimum error the user needs to perform the task is 0.25. A maximum of 4 trials are needed to reach the asymptote point where the curve becomes flat. The gap from what we infer from the graph is quite large. So, more time was taken to learn the task.

#### Lab 6: Exercise 2.1

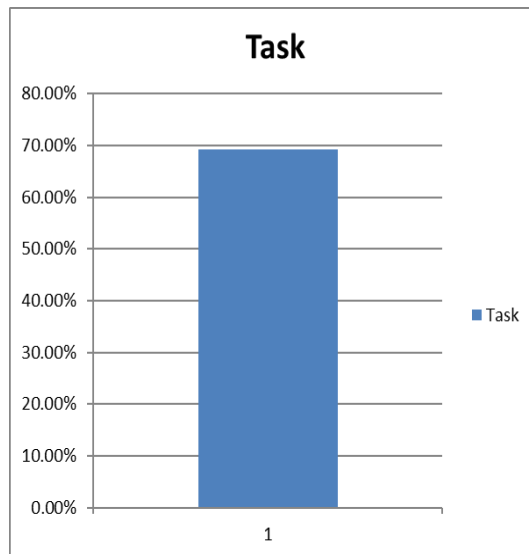
##### Usability Metrics and Analysis

##### Exercise 2.1

assign to success a value, usually, 1 and to failure another, usually, 0

Participant	Task
P1	1
P2	0
P3	1
P4	1
P5	0
P6	1
P7	0
P8	1
P9	0
P10	1
P11	1
P12	1
P13	1

Participant	Task
p1	1
p2	0
p3	1
p4	1
p5	0
p6	1
p7	0
p8	1
p9	0
p10	1
p11	1
p12	1
p13	1



Proportion of success:  $9/13 = 0.6923$

### INPUT TABLE

Passed	Total Tested
<input type="text" value="9"/>	<input type="text" value="13"/>

Confidence Level:

Likely Population Completion Rate:

### RESULTS TABLE

	Confidence Intervals			Point Estimates	
	Low	High	Margin of Error*	Best Estimate	
Adj. Wald	0.4204	0.8765	0.2280		0.6667
Exact	0.3857	0.9091	0.2617	MLE	0.6923
Score	0.4237	0.8732	0.2247	LaPlace	0.6667
Wald	0.4414	0.9432	0.2509	Jeffrey's	0.6786
			Using Alpha: 0.05	Wilson	0.6484

It is a small sample (13) therefore I used the Adjusted Wald Method.

I enter the total number of participants for each task and how many of them successfully completed it

I chose to calculate 95% confidence interval then read the output confidence interval

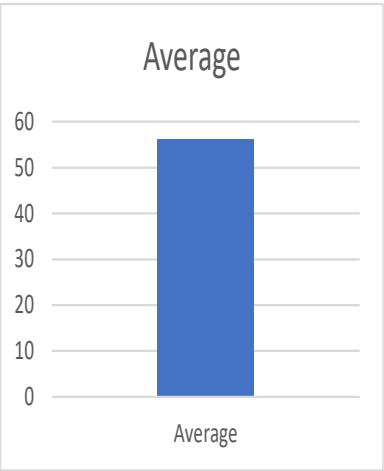
I have one task with 13 participants for each participant there is failure and success, I assigned 1 to success and zero to the failure then I used Excel to compute the average of success.

I used the Adjusted Wald Method to find Confidence intervals for binary success. I find that the model has 0.6923 Maximum Likelihood with 0.05 Alpha.

0.2280 is the margin error for Adjusted Wald Method while 0.6667 is The best point estimate is calculated using the following logic: Since I selected "Unknown" from the Likely Population Completion Rate drop-down, the LaPlace method is used. The smaller my sample size and the farther my initial estimate of  $p$  is from .5, the greater the benefit over the maximum likelihood.

[Lab 7: Exercises 2.2 and 2.3](#)  
[Usability Metrics and Analysis](#)

Users	Tasks	Ln (Tasks)
1	45	3.806662
2	22	3.091042
3	40	3.688879
4	23	3.135494
5	60	4.094345
6	90	4.49981
7	80	4.382027
8	48	3.871201
9	90	4.49981
10	45	3.806662
11	74	4.304065



Mean Ln	3.925454
geometric mean	50.6761
Standard Dev	23.42281
Average (mean)	56.09091
T confidence value	15.73566
Ln Standard Dev	0.494723

### Exercise 2.3

standard deviation	0.727247
T confidence value	0.27156
No of Best	7
Average of Best	0.2333

I used T distribution to compute the confidence value , I used Excel to compute it and to plot the statistics

INPUT TABLE		RESULTS TABLE				
Passed	Total Tested	Confidence Intervals			Point Estimates	
7	30	Low	High	Margin of Error*		
<input type="button" value="Calculate"/>		Adj. Wald	0.1152	0.4120	0.1484	Best Estimate 0.2500
Confidence Level: 95% ▼		Exact	0.0993	0.4228	0.1617	MLE 0.2333
Likely Population Completion Rate		Score	0.1179	0.4093	0.1457	LaPlace 0.2500
Unknown ▼		Wald	0.0820	0.3847	0.1513	Jeffrey's 0.2419
		Using Alpha: 0.05			Wilson	0.2636



### Exercise 3

The percentage time of participant 5 is high, the percentage success is high. They make the percentage rating to be high. So participant 5 is the best.

The percentage time of participant 8 is low. The percentage success is lowest. It has the lowest rating and so it is the worst.

The percentage rate of participant 4 is also very low. He has low success percentage. He also has low rating. He is there in the second-last position.

### Abstract

This document contains the solutions of Lab 8 (recover 0.5) SHMI Class 2016/2017.

### Prepared by

Heider Jeffer

### Exercise 1: individual open card sorting (1/2)

Heider

#### Label 1: Task Measure

time on task  
effort for task  
success on task

#### Label 2: Design Methods

consistency and standard design  
wire-framing  
minimalism and aesthetics design

#### Label3: Orders

card sorting  
tree sorting  
hub-and-spoke hierarchy

#### Label 4: Page Styles

carousel  
think aloud  
cognitive walkthrough

By assuming that Mr X is my group member ,

#### Label 1: Task Measure

consistency and standard design  
effort for task  
success on task

#### Label 2: Design Methods

time on task  
wire-framing  
minimalism and aesthetics design

#### Label3: Orders

card sorting  
tree sorting  
think aloud

#### Label 4: Page Styles

carousel  
hub-and-spoke hierarchy  
cognitive walkthrough

## Exercise 1: group open card sorting (2/2)

### Heider's Matrix and Mr. X Matrix

0 if the items in row i and column j belong together; 1 otherwise

	A	B	C	D	E	F	G	H	I	J	K	L	M
2	cognitive walkthrough	0	0	1	1	1	1	1	1	1	1	0	1
3	carousel	0	0	1	1	1	1	1	1	1	1	0	1
4	minimalism and aesthetics design	1	1	0	0	1	1	0	1	1	1	1	1
5	consistency and standard design	1	1	0	0	1	1	0	1	1	1	1	1
6	time on task	1	1	1	1	0	0	1	0	1	1	1	1
7	success on task	1	1	1	1	0	0	1	0	1	1	1	1
8	wire-framing	1	1	0	0	1	1	0	1	1	1	1	1
9	effort for task	1	1	1	1	0	0	1	0	1	1	1	1
10	card sorting	1	1	1	1	1	1	1	1	0	0	1	0
11	hub-and-spoke hierarchy	1	1	1	1	1	1	1	1	0	0	1	0
12	think aloud	0	0	1	1	1	1	1	1	1	1	0	1
13	tree sorting	1	1	1	1	1	1	1	1	0	0	1	0
14													
15	<b>MATRIX OF MEMBER 2</b>	cognitive walkthrough	carousel	minimalism and aesthetics design	consistency and standard design	time on task	success on task	wire-framing	effort for task	card sorting	hub-and-spoke hierarchy	think aloud	tree sorting
16	cognitive walkthrough	0	0	1	1	1	1	1	1	1	0	1	1
17	carousel	0	0	1	1	1	1	1	1	1	0	1	1
18	minimalism and aesthetics design	1	1	0	0	1	0	1	0	1	1	1	1
19	consistency and standard design	1	1	1	0	1	0	1	0	1	1	1	1
20	time on task	1	1	0	1	0	1	0	1	1	1	1	1
21	success on task	1	1	1	0	1	0	1	0	1	1	1	1
22	wire-framing	1	1	0	1	0	1	0	1	1	1	1	1
23	effort for task	1	1	1	0	1	0	1	0	1	1	1	1
24	card sorting	1	1	1	1	1	1	1	1	0	1	0	0
25	hub-and-spoke hierarchy	0	0	1	1	1	1	1	1	1	0	1	1
26	think aloud	1	1	1	1	1	1	1	1	0	1	0	0
27	tree sorting	1	1	1	1	1	1	1	1	0	1	0	0
28													
29	<b>SIMILARITY MATRIX</b>	cognitive walkthrough	carousel	minimalism and aesthetics design	consistency and standard design	time on task	success on task	wire-framing	effort for task	card sorting	hub-and-spoke hierarchy	think aloud	tree sorting
30	cognitive walkthrough												
31	carousel	0											
32	minimalism and aesthetics design	2	2										
33	consistency and standard design	2	2	1									
34	time on task	2	2	1	2								
35	success on task	2	2	2	1	1							
36	wire-framing	2	2	0	1	1	2						
37	effort for task	2	2	2	1	1	0	2					
38	card sorting	2	2	2	2	2	2	2	2				
39	hub-and-spoke hierarchy	1	1	2	2	2	2	2	2	1			
40	think aloud	1	1	2	2	2	2	2	2	1	2		
41	tree sorting	2	2	2	2	2	2	2	2	0	1	1	

FIGURE 1 FROM OPEN-CARD-SORTING-EXERCISE BY HEIDER JEFFER

## Similarity Matrix for ( Heider with Mr X ) ,

29	SIMILARITY MATRIX	cognitive walkthrough	carousel	minimalism and aesthetics design	consistency and standard design	time on task	success on task	wire-framing	effort for task	card sorting	hub-and-spoke hierarchy	think aloud	tree sorting
30	cognitive walkthrough												
31	carousel	0											
32	minimalism and aesthetics design	2	2										
33	consistency and standard design	2	2	1									
34	time on task	2	2	1	2								
35	success on task	2	2	2	1	1							
36	wire-framing	2	2	0	1	1	2						
37	effort for task	2	2	2	1	1	0	2					
38	card sorting	2	2	2	2	2	2	2	2				
39	hub-and-spoke hierarchy	1	1	2	2	2	2	2	2	1			
40	think aloud	1	1	2	2	2	2	2	2	1	2		
41	tree sorting	2	2	2	2	2	2	2	2	0	1	1	

FIGURE 2 FROM SIMILARITY MATRIX FROM OPEN-CARD-SORTING-EXERCISE BY HEIDER JEFFER

### Label 1

cognitive walkthrough

carousel

- items belong together because they have 0 dissimilarity

### Label 3

effort for task

success on task

- items belong together because they have 0 dissimilarity

### Label 2

minimalism and aesthetics design

wire-framing

- items belong together because they have 0 dissimilarity

### Label 4

card sorting

tree sorting

- items belong together because they have 0 dissimilarity

## Exercise 2: discuss a card sorting analysis

### Cluster 1

B C

2 dissimilarity

### Cluster 2

F G

2 dissimilarity

### Cluster 4

E H

8 dissimilarity

### Cluster 3

A D

8 dissimilarity

#### Idea Behind

B with C in cluster 1 (2 dissimilarity)

F with G in cluster 2 (2 dissimilarity)

B with C were chosen for Cluster 1

F with G were chosen for Cluster 1

Therefore,

H with E will be in cluster 4 (8 dissimilarity)

A with D will be in cluster 3 (8 dissimilarity)

H with E are more likely similar to be in the same cluster (cluster 4)

A with D = 8 therefore A with D are more likely to be in the same cluster (cluster 3)

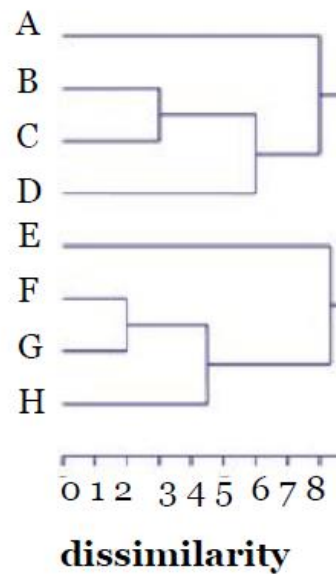


FIGURE 3 FROM LAB 8, PAGE 7

#### Exercise 3

$$L = [ (N/S - 1)^2 + (R/N - 1)^2 ]^{1/2}$$

FIGURE 4 : FROM SLIDE LAB 8, PAGE 9

##### Task 1:

N = 4 The number of different screens visited during the task.

S = 7 The total number of screens visited during the task.

R = 4 The minimum number of screens that must be visited to complete a task.

**L<sub>1</sub> = 0.4285714286 is the user's Lostness for task 1**

##### Task 2:

N = 7 The number of different screens visited during the task.

S = 7 The total number of screens visited during the task.

R = 3 The minimum number of screens that must be visited to complete a task.

**L<sub>2</sub> = 0.3265306122 is the user's Lostness for task 2**

L<sub>1</sub> > L<sub>2</sub> mean that the user straggled in task 1 more than task 2