



# POLITECNICO MILANO 1863

M.Sc. Computer Science and Engineering

Hypermedia Applications (Web and Multimedia) Project

## Design Report

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Delivery date: April 24th, 2020

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# **Chapter 1**

## **Revision history**

With respect to the Design report previously submitted, we made the following adjustments:

- the navigation pattern to reach the list of services of a category has changed from "I" to "I+GT";
- in the scenarios, the "hovering" of the mouse in the navigation bar to open the pop-up menus has been replaced by "click";
- in the 3rd scenario, further details have been added after the press of the "Submit" button;
- the last Chapter has been revised. In particular some tables and some additional columns have been reorganized or added to the previous ones.

# **Chapter 2**

## **Abstract**

This document provides information about the design of a voluntary association website. It has been carried out focusing on:

- the graphical representation, by means of the IDM (Interactive Dialogue Model) schemas (Conceptual IDM or C-IDM, Logic IDM or L-IDM and Page IDM or P-IDM);
- the design-in-the-small (low and high fidelity wireframes);
- the diagrams for the database design (E-R diagram and Relational tables).

A series of scenarios have been provided as well, in order to illustrate some of the typical navigation paths available for users on the website.

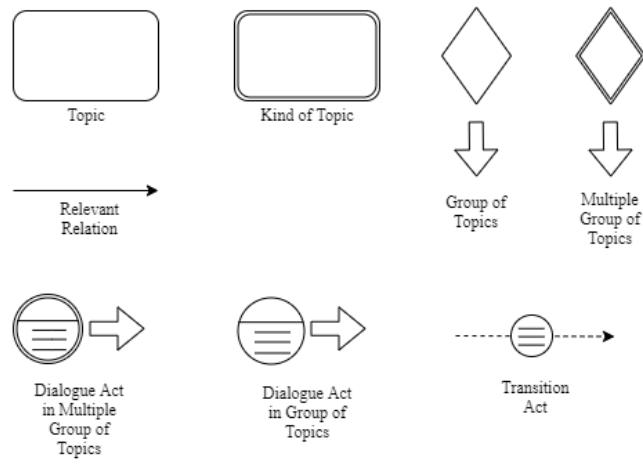
# Chapter 3

## Graphical representations

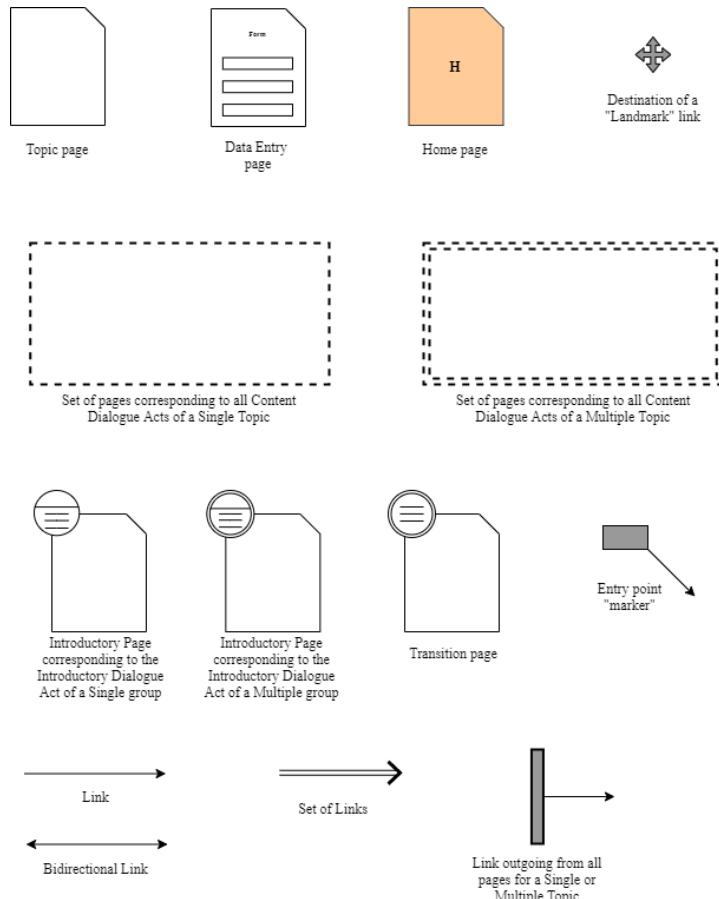
The design-in-the-large is represented by the following IDM schemas.

### 3.1 Notation

This figures show the notation used to build the IDM schemas.

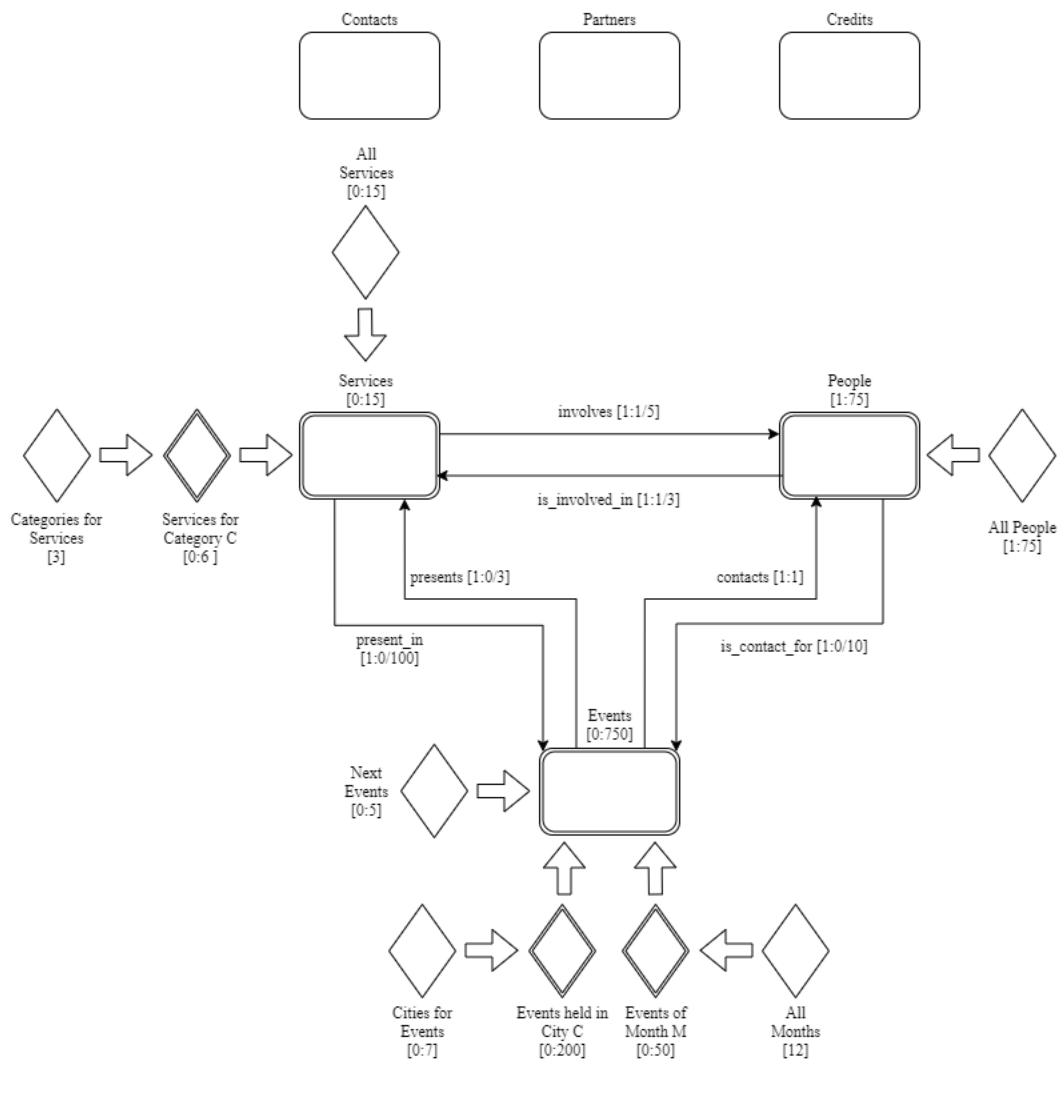


Notation for C-IDM and L-IDM schemas



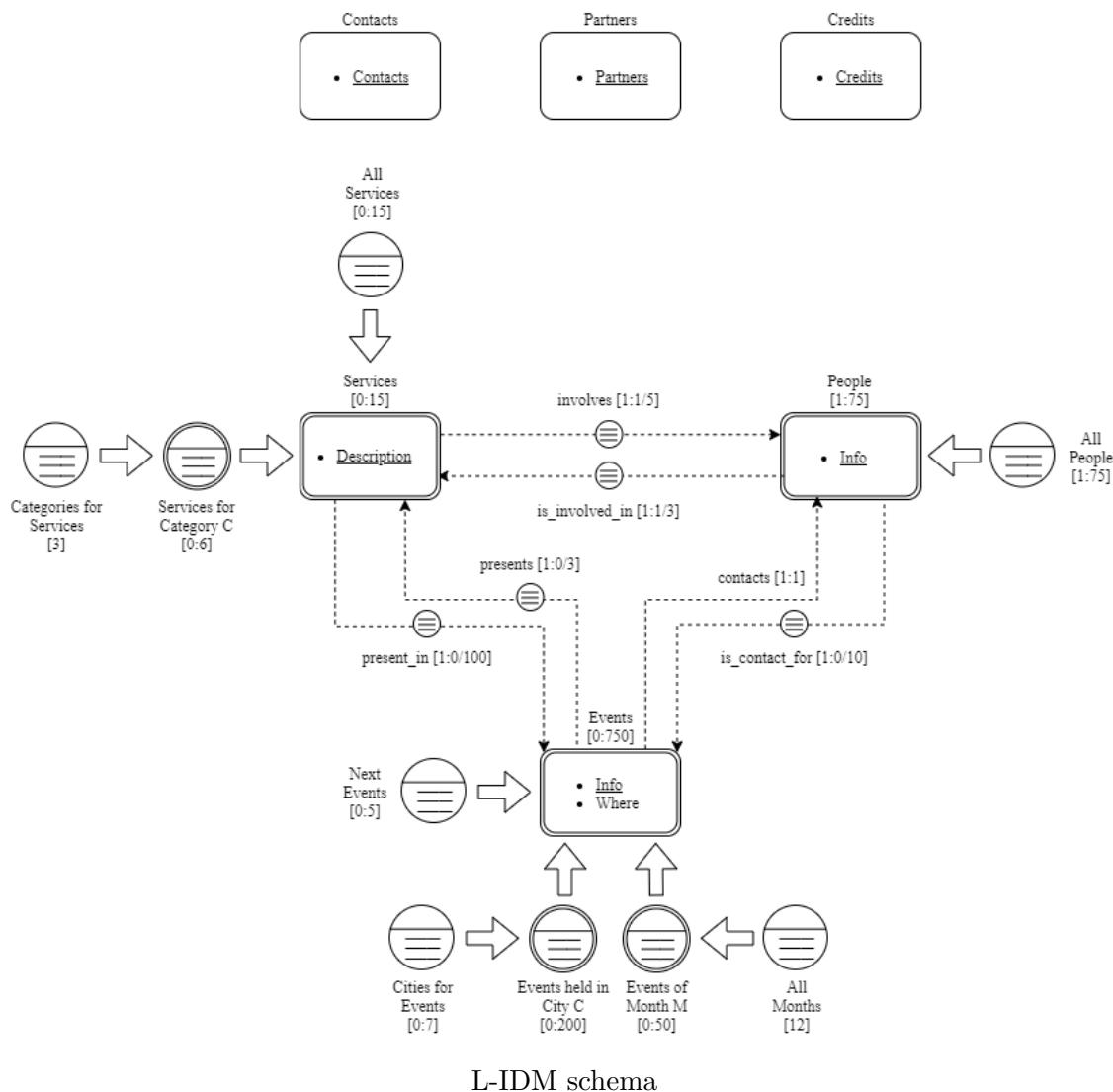
Notation for P-IDM schema

### 3.2 C-IDM schema

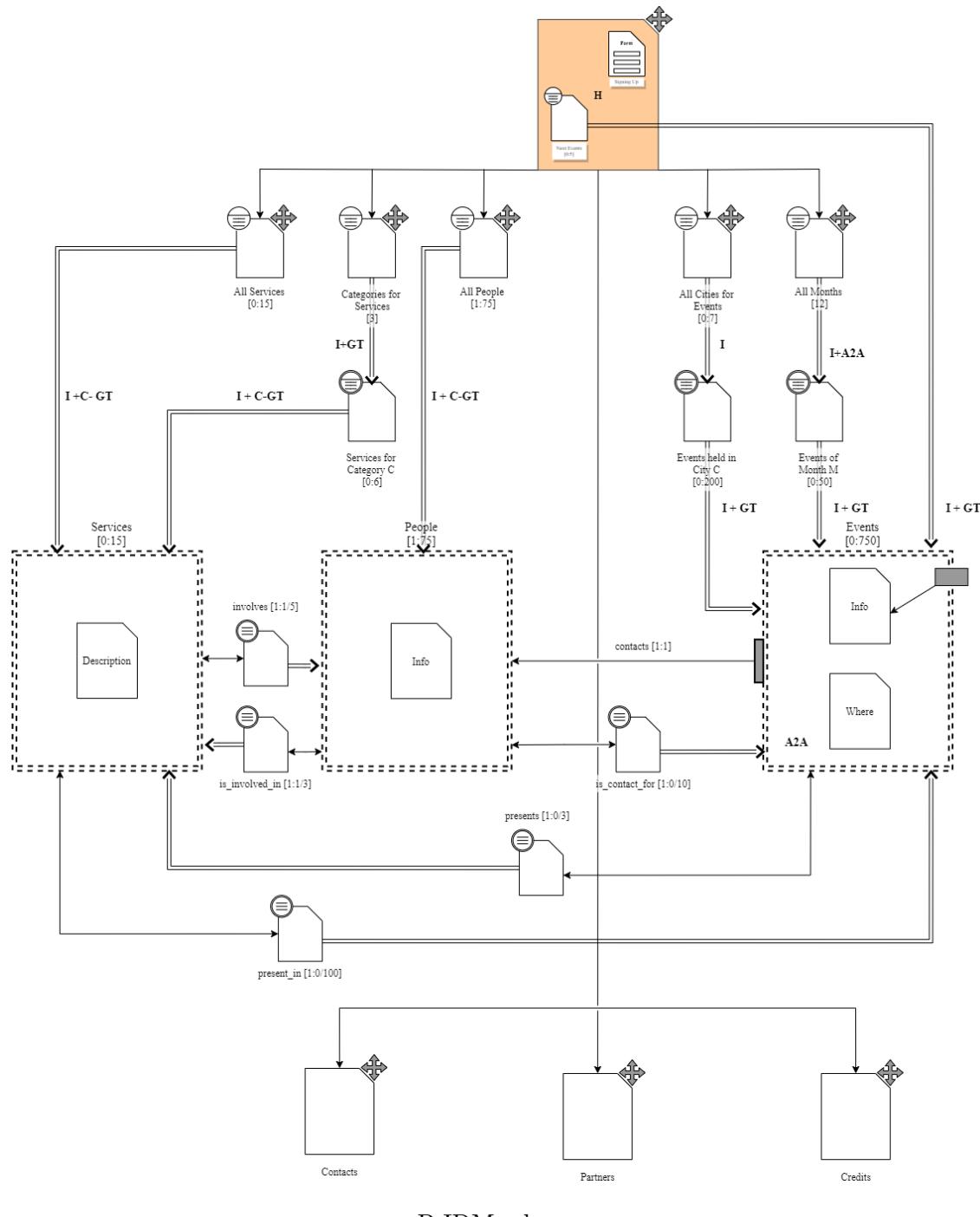


C-IDM schema

### 3.3 L-IDM schema



### 3.4 P-IDM schema



P-IDM schema

# **Chapter 4**

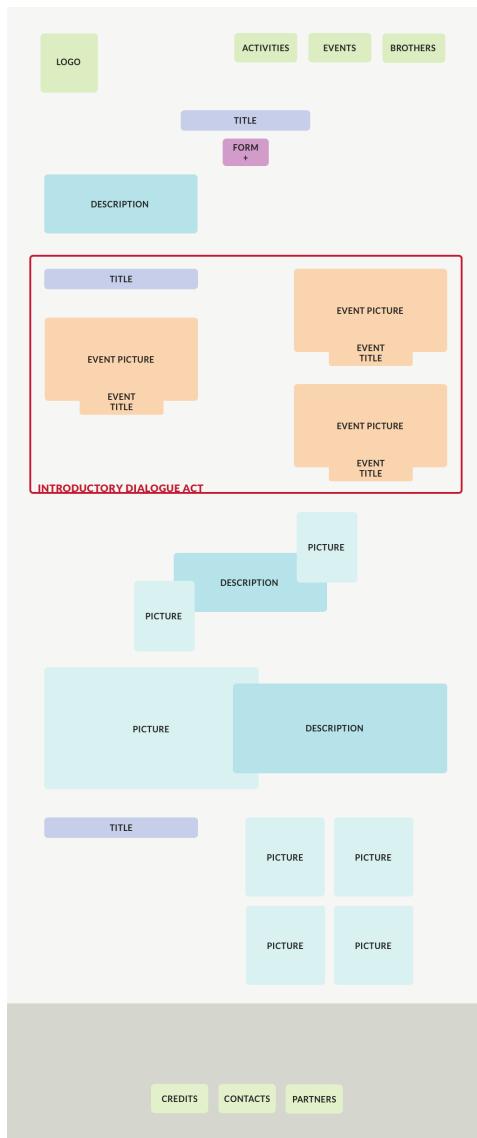
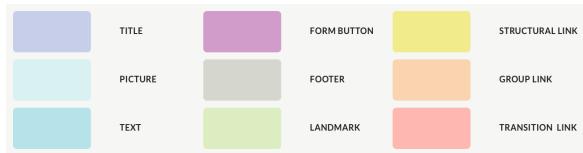
## **Design in-the-small**

Low and high fidelity wireframes are provided in this chapter. The terms “Services” and “People” used in the schemas shown above will be replaced by the terms “Activities” and “Brothers”, respectively.

In order to distinguish the type of elements in the page, the low fidelity wireframes have been constructed using different colours, according to the convention, reported over each one of them.

All the elements have been classified directly on the Wireframes, for readability reasons. The Screenshot related to each Wireframe is reported in the right-handside.

## 4.1 Homepage



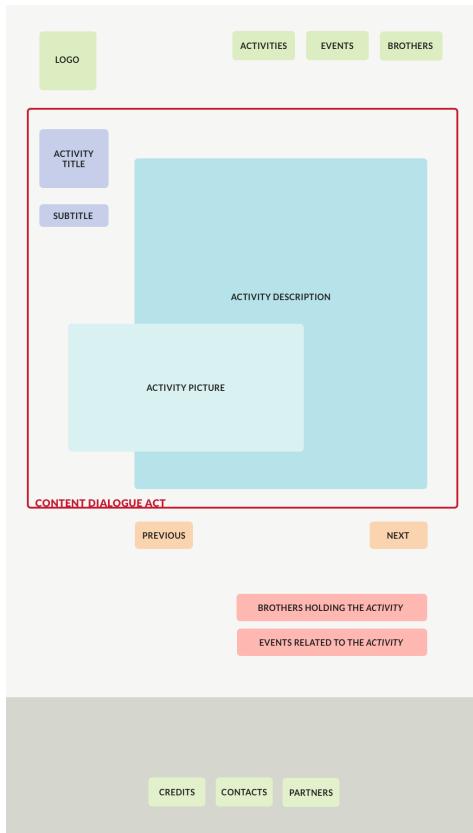
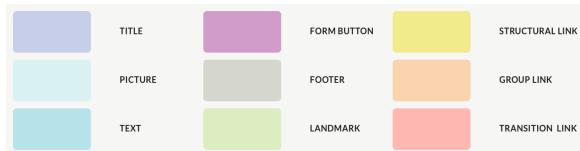
Wireframe



Screenshot

## 4.2 Multiple Topic pages

### 4.2.1 Activity page

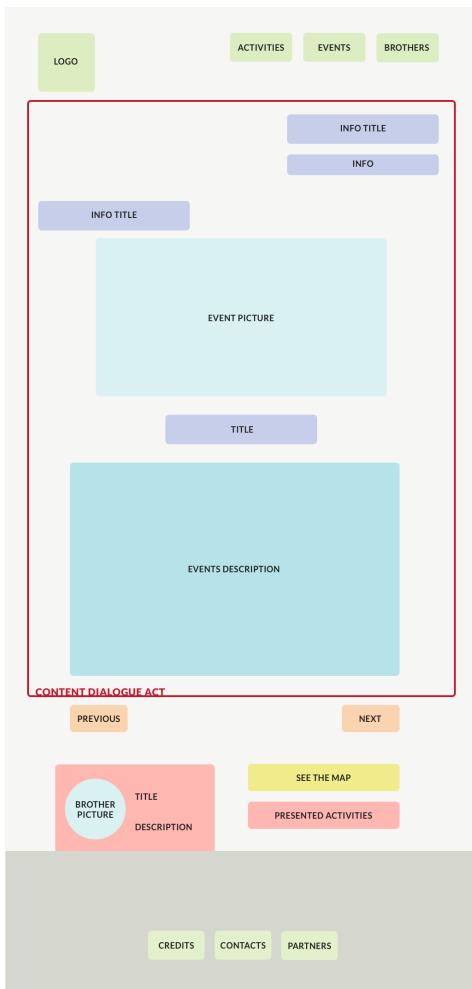
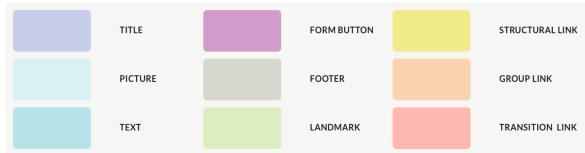


Wireframe

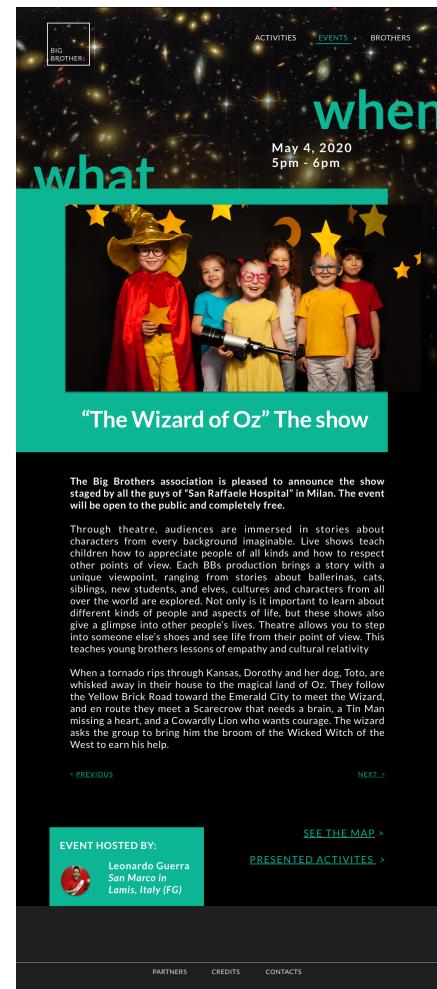


Screenshot

### 4.2.2 Event page

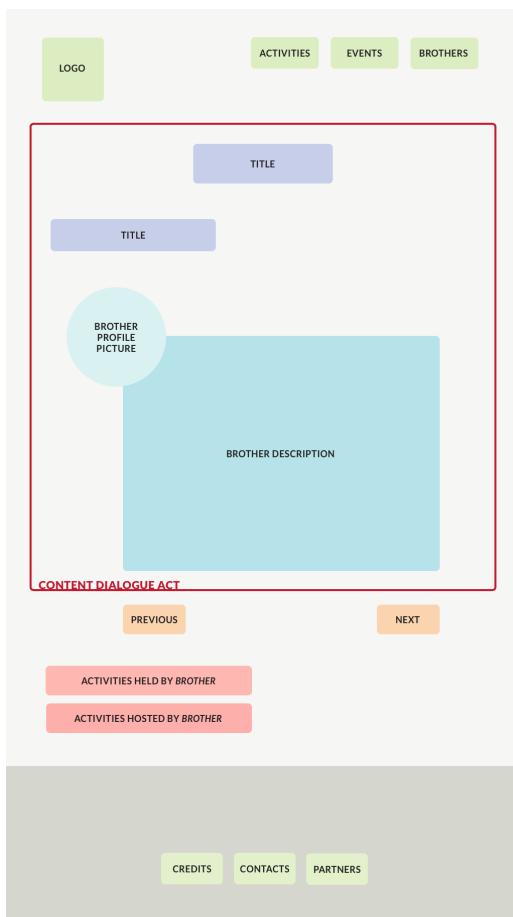
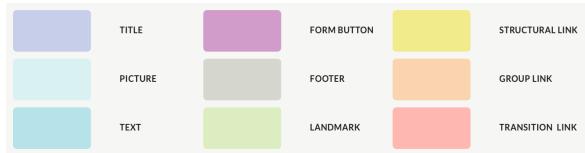


Wireframe



Screenshot

### 4.2.3 Brother page



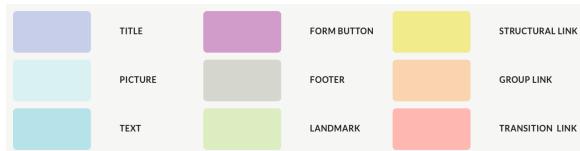
Wireframe



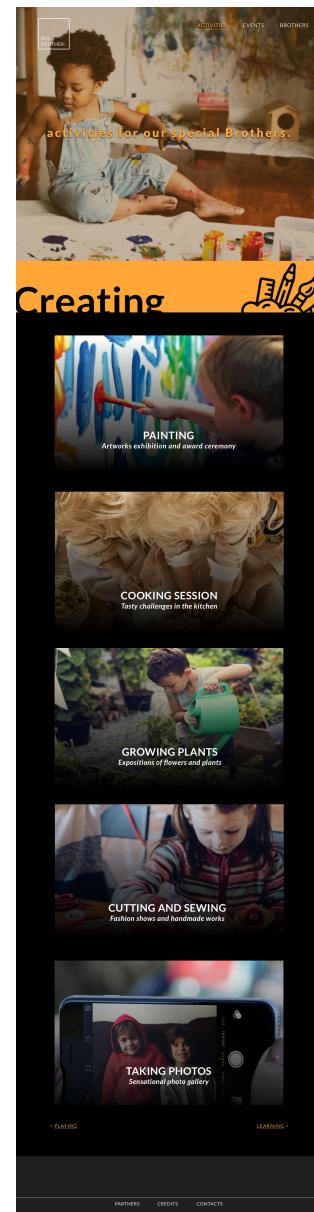
Screenshot

## 4.3 Introductory pages

### 4.3.1 Activities Introductory page

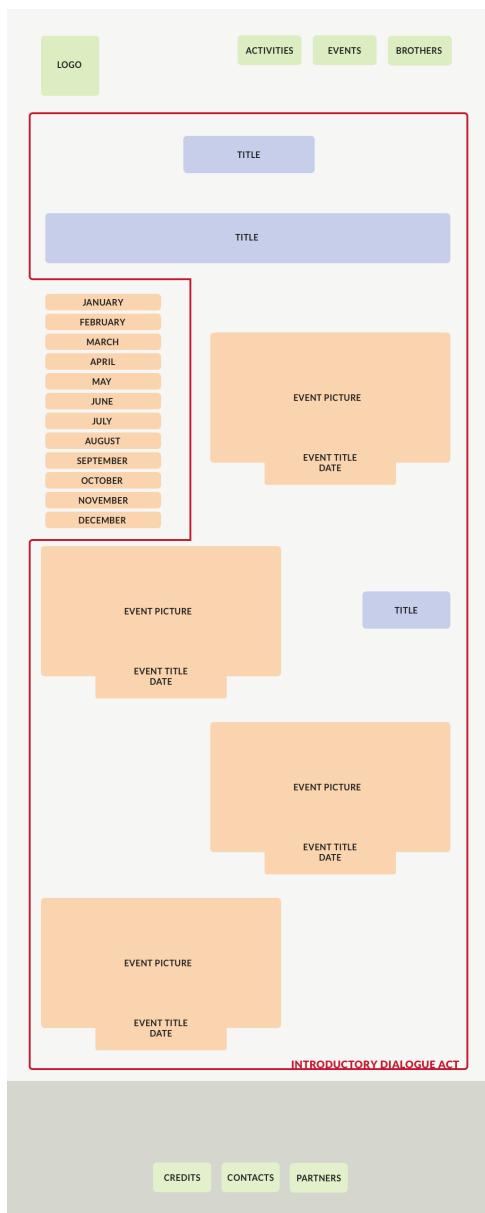
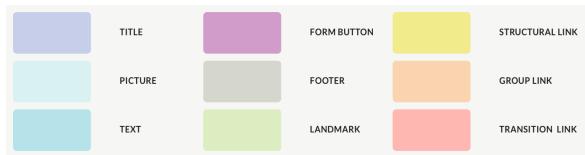


Wireframe



Screenshot

### 4.3.2 Events Introductory page

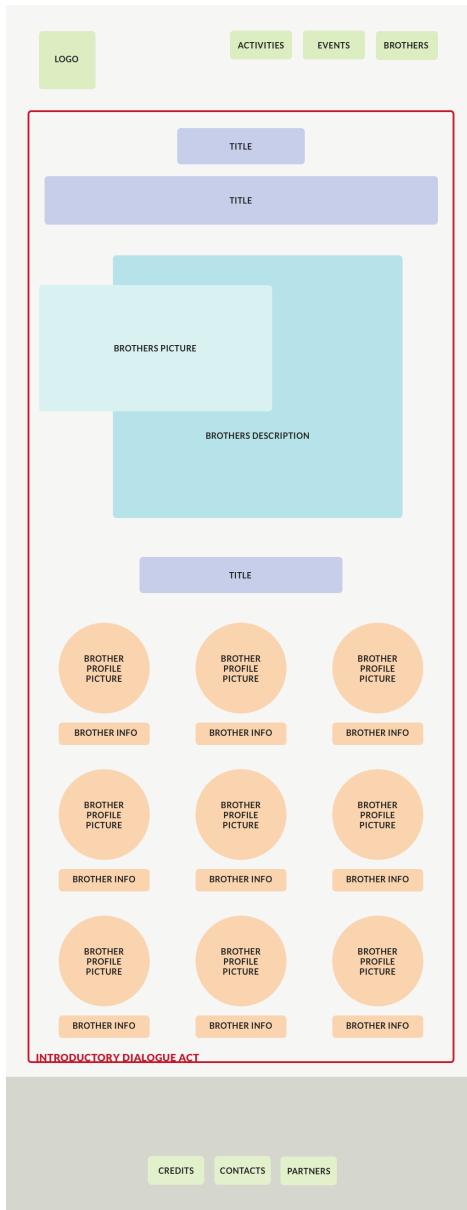
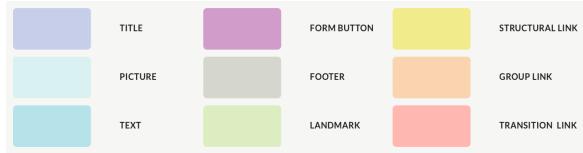


Wireframe



Screenshot

### 4.3.3 Brothers Introductory page



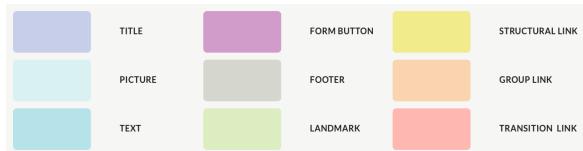
Wireframe



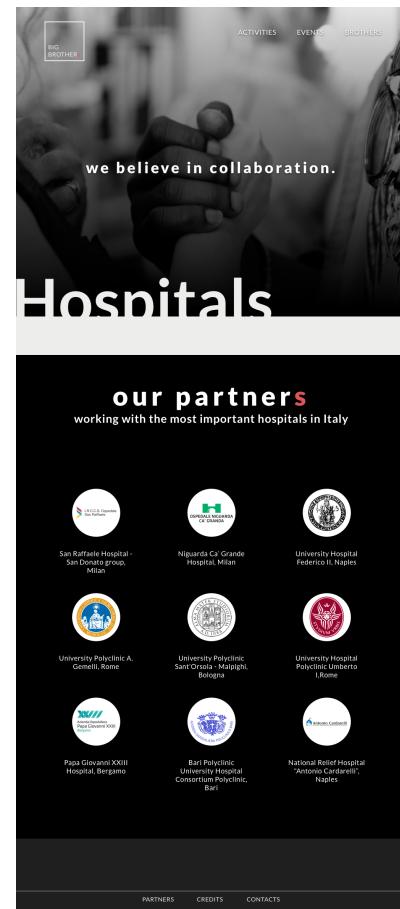
Screenshot

## 4.4 Single Topic page

### 4.4.1 Partners page



Wireframe



Screenshot

# Chapter 5

## Scenarios

The following scenarios have the aim to provide some exemplifying information about the end user profiles, the goals they may want to accomplish and the task of actions required by the system, in order to fulfill their needs.

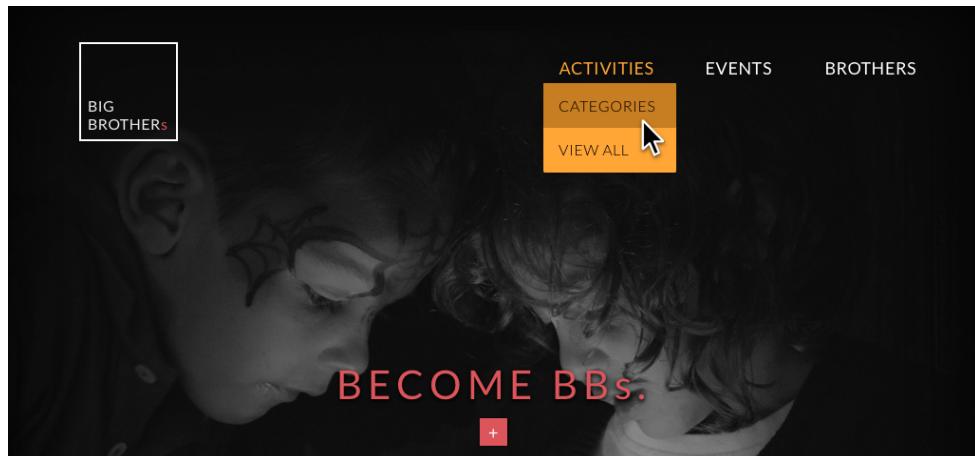
The terms “Services” and “People” used above will be replaced by the terms “Activities” and “Brothers”, respectively.

Some screenshots are provided to better illustrate the description of the features.

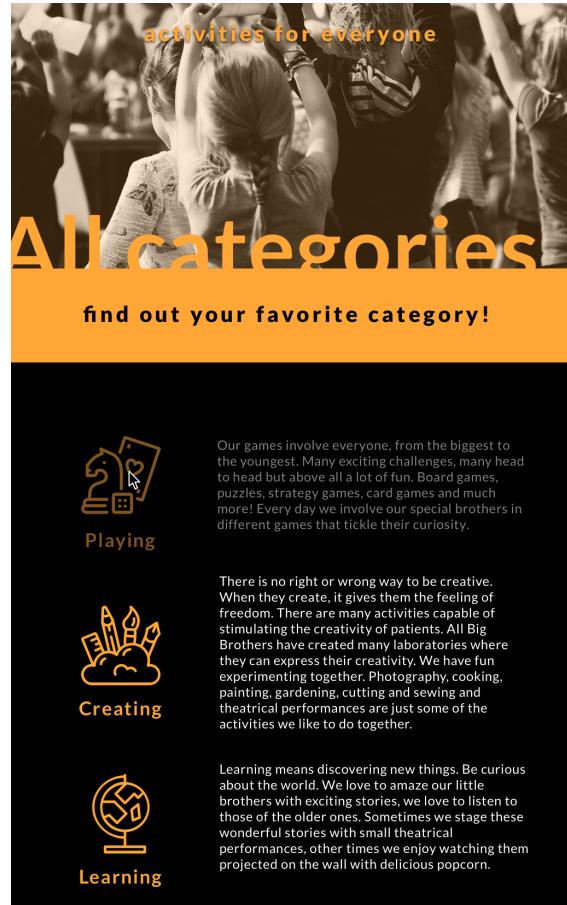
### 5.1 Scenario 1: Activities, Events

Ted is a 45 years old man who broke his leg and is currently hospitalized in one of the structures affiliated with the association. He loves playing board games and came to know about the activities organized by Big Brothers talking to his roommate. In order to retrieve additional information, he visits the website of the association and:

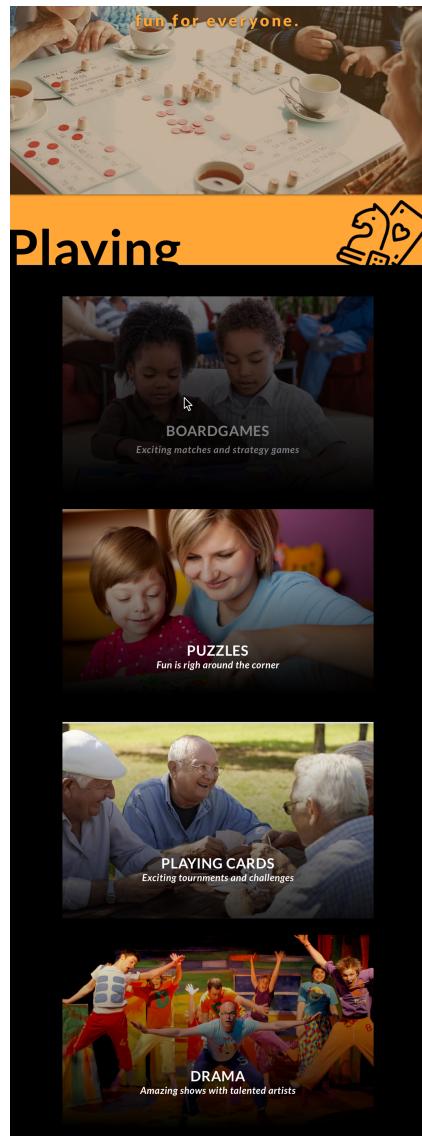
- clicks on the “Activities” button and selects “Categories” from the pop-up menu;



- he is shown a page containing three categories: “Playing”, “Creating” and “Learning”;
- he clicks on “Playing”, which is the one he is more interested in;



- the following page gives him the possibility to choose between “Board Games”, “Puzzles”, “Playing Cards” and “Drama”;



- he clicks on “Board Games”, reads the information about the chosen activity and decides to take part in the next chess matches.

# BoardGames

**Exciting matches and strategy games**

Board games entertain and bring people together through competitive and cooperative game play. Some of the most popular board games are: Monopoly, Chess, Checkers, Bridge, Kalooki 40, Scrabble, and many more. However, board games offer far more than just entertainment. In fact, these games have been shown to impact health in multiple aspects at any age. The Big Brothers know well the health benefits of board games:

One of the side effects of playing board games is laughing. Laughing has been shown to increase endorphins, those are chemicals that bring up the feeling of happiness. Sharing laughter and fun can promote empathy, compassion, and trust with others.



One of the primary benefits of playing board games is reducing the risk of cognitive declines, such as that associated with dementia and Alzheimer's.

Along with laughing and increasing your endorphins, they can help you manage your blood pressure. This release of endorphins helps muscles to relax and blood to circulate, which evidently will lower your blood pressure. High blood pressure is associated with a greater risk of artery damage, heart disease, and stroke.

You can always benefit from a healthy distraction like playing board games since it is an excellent way to kick back and relax. Many board games require the use of fine motor skills to pick up or move pieces, actions that take both physical and mental effort.

Board games are very helpful when they are added to occupational therapy treatments, as well in places like classrooms for special needs to help improve muscle and nerve function over time.

**JOIN US!**  
**THERE WILL BE A LOT OF FUN!**

[← PREVIOUS](#) [NEXT →](#)

[EVENTS RELATED TO BOARDGAMES >](#)  
[BROTHERS HOLDING BOARDGAMES >](#)

In the Board Games dedicated page he notices a “Related Events” button, clicks on it and reaches a page containing all the planned events about the activity. Ted scrolls the page and finds out that the final of the chess tournament will be held the next week.

The image displays two side-by-side screenshots of a website for "BoardGames".

**Left Screenshot:** Shows a main banner with the text "BoardGames" and "Exciting matches and strategy games". Below the banner are several event cards:

- Bridge and Monopoly - The Final**: University Hospital Federico II Naples, April 27, 2020.
- Backgammon and Kalooki 40 - The Final**: San Raffaele Hospital - San Desiderio, April 27, 2020.
- Adult Vs Kids - Chess Final Battle**: San Raffaele Hospital - San Desiderio, March 21, 2020.

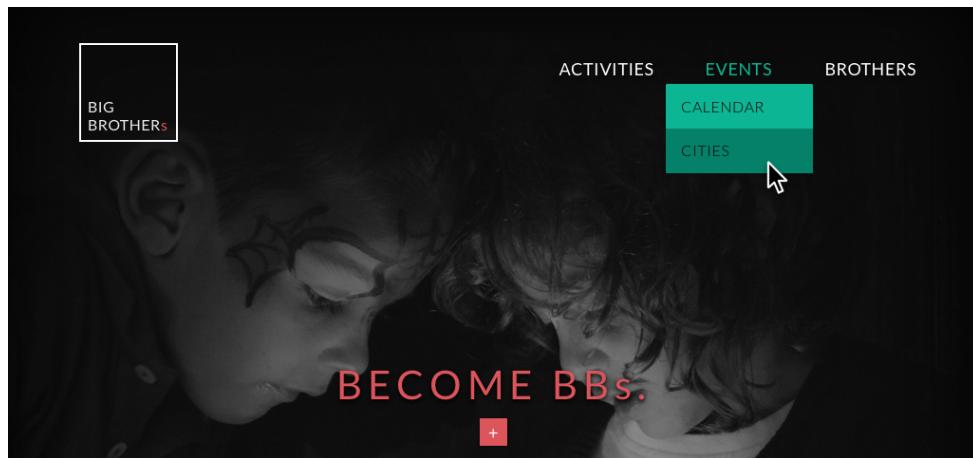
**Right Screenshot:** Shows a main banner with the text "when what" and "April 27, 2020 5pm - 6pm". Below the banner is a large image of people playing backgammon and kalooki. A green box highlights the "Backgammon and Kalooki 40 - The Final" event with the text "The Big Brothers association is pleased to announce the long-awaited Backgammon and Kalooki 40 Finals with the guys of "San Raffaele Hospital" in Milan. The event will be open to the public, and completely free." Below this is a detailed description of the game rules and objectives.

**Bottom Navigation:** Both screenshots show standard website navigation links: PARTNERS, CREDITS, CONTACTS, and a "RELATED EVENTS" button.

## 5.2 Scenario 2: Events

Mary is a Milan woman, whose daughter, Lily, has recently been in one of the BBs' affiliated structures in Milan due to a surgery. During the hospitalization, Lily took part to the drama activity and now she wants to be present at the show organized by the association. With the aim of fulfilling her daughter's wish, Mary:

- clicks on the “Events” button and select “Cities” from the pop-up menu;



- selects the city of Milan among the alternatives;



- looks at the page listing all the events held in Milan to find the one she is searching for and finally clicks on “The Wizard of Oz”;



- reads the information about the event, including its date, start and end time.

Since she does not remember the exact address of the hospital, she clicks on “See the map” and looks at the page containing all the position information.

**when**

May 4, 2020  
5pm - 6pm

**what**

**"The Wizard of Oz" The show**

The Big Brothers association is pleased to announce the show staged by all the guys of "San Raffaele Hospital" in Milan. The event will be open to the public and completely free.

Through theatre, audiences are immersed in stories about characters from every background imaginable. Live shows teach children how to appreciate people of all kinds and how to respect other points of view. Each BBS production brings a story with a unique viewpoint, ranging from stories about ballerinas, cats, siblings, new parents, and even the environment. Stories from all over the world are explored. Not only is it important to learn about different kinds of people and aspects of life, but these shows also give a glimpse into other people's lives. Theatre allows you to step into someone else's shoes and see life from their point of view. This teaches young brothers lessons of empathy and cultural relativity.

When a tornado rips through Kansas, Dorothy and her dog, Toto, are whisked away in their house to the magical land of Oz. They follow the Yellow Brick Road toward the Emerald City to meet the Wizard, and along the way, they meet the Scarecrow, the Tin Man missing a heart, and a Cowardly Lion who wants courage. The wizard asks the group to bring him the broom of the Wicked Witch of the West to earn his help.

[PREVIOUS](#) [NEXT](#)

**EVENT HOSTED BY:**  
Leonardo Guerra  
San Marco in Lamis, Italy (FG)

[SEE THE MAP >](#) [PRESENTED ACTIVITIES >](#)

PARTNERS CREDITS CONTACTS

**ACTIVITIES EVENTS BROTHERS**

**where**

San Raffaele Hospital  
San Donato group, Milan

Via Olggettina 60  
20099 Segrate, Milan  
Italy

[SEE THE DETAILS >](#) [PRESENTED ACTIVITIES >](#)

PARTNERS CREDITS CONTACTS

### 5.3 Scenario 3: Brothers

Marshall is a Computer Science Engineering student. He discovered the existence of the BBs association when, going to visit his friend Barney, he told him with great enthusiasm about the activities he had taken part in and how the days of hospitalization had passed without even realizing it. So Marshall, fascinated by the work of the association, decided to join it. First, he wants to take a peek at the volunteers' profiles, in order to figure out if he has the minimum required set of soft skills to be part of Big Brothers. Therefore, Marshall:

- clicks on the “Brothers” button and sees the list of all the volunteers;



- clicks on a volunteer called “Leonardo Guerra” and reads his information in the page that opens.



**About us**

The Big Brothers association was founded in 2014 by Gabriele. She is originally from Italy Rome. With a degree in Computer Engineering she worked for a few years in Italy before moving to Canada to work for an international NGO. After one month she wanted to do something else and started volunteering for a local organization that settles. She decided the perfect thing to do was to found an association which would bridge the gap between volunteers and voluntary organizations.

Her first experience of volunteering was working with disadvantaged people, in Naples. This experience convinced her of the need to expand and help more people. She moved to Salerno and worked for a local NGO in Salerno for two months and in Cava De' Tirreni for five months to undertake incredibly important projects. She then moved to the US and worked for a local NGO in New York with a white car. She spent two months around Campania and Puglia to train young people to become volunteers and help them to find their place in life.

Her dream is that of preventing and developing our Charity, creating some big projects and making a difference in the world. She has been volunteering since 10 years ago. She has a passion for helping others and she truly believes that we can do our part to make the world a better place.

With the support of her friends and bestfriends, Fabiana, her best buddy Leonardo and her lovely mom Paola, Big Brothers has grown a lot. She organized many events and activities for the community and started organizing volunteer projects for a handful of brave applicants. Gradually more and more people joined the team and the association grew. In 2016 10 volunteers signed up with a small association, run by one estable group of volunteers from several different countries and a handful of full time field staff. They have organized many events, including fun runs, sports activities and beautiful events inside them. Her motto is:

“Whatever you do in this life, it's not legendary, unless your friends are there to tell it.”

**our stories**  
read more about us

Miriam Ferrara  
Cava De' Tirreni, Italy (SA)  


Laura Gabola  
Soveri, Italy (SA)  


Gaia Locchi  
Roma, Italy (RM)  


Fabiana Ferrara  
Cava De' Tirreni, Italy (SA)  


Leonardo Guerra  
San Marco In Lamis, Italy (FG)  


Amina Pina  
Crotone, Italy (CS)  




**Leonardo Guerra**  
San Marco In Lamis, Italy (FG)

He's a 23s young apulian guy, became a Brother 2 years ago. With three years of experience as a volunteer in fast-paced hospital settings he possesses a skill set and hands-on understanding necessary to affect positive outcomes in this role.

Currently he's a Hospital Volunteer at the San Raffaele Hospital where he provides emotional support to patients and families while also performing a range patient assistance duties.

Prior to this he held similar hospital volunteer roles at Università Politecnica di Sant'Orsola - Malpighi in Bologna and Palermo Children's Hospital where he gained a reputation for his ability to provide compassion through genuine listening and conversation.

In addition to these experiences he's pursuing his Bachelor of Computer Science and Engineering and he's also a Certified Nursing Assistant (CNA); the knowledge and aptitude he's gaining through this education allows him to excel as a volunteer and support agent.

He looks forward the opportunity learn more about this opportunity and to discuss how he can contribute his strengths at San Raffaele Hospital.

"Roads? Where we're going we don't need roads, just right ingredients to make a good pizza."

Leonardo Guerra

[← PREVIOUS](#) [NEXT →](#)

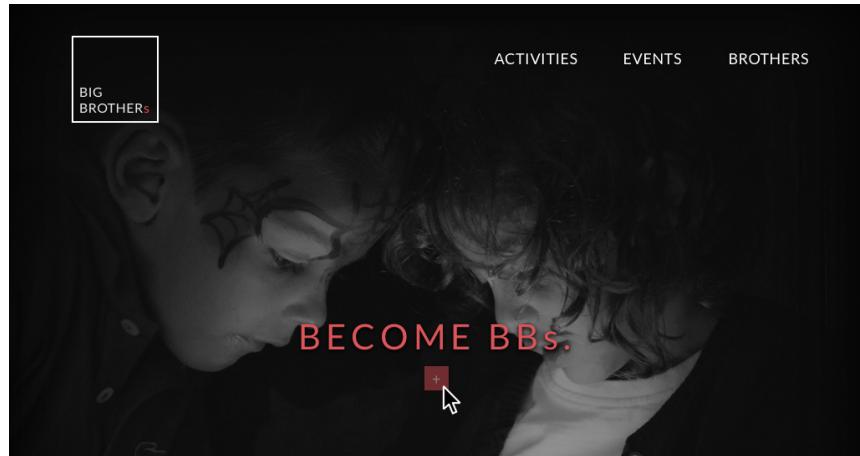
**ACTIVITIES HELD BY LEONARDO**  
**EVENTS HOSTED BY LEONARDO**

There, Marshall notices that Leonardo is a university student, just like he is. Then, he clicks on “Next” and begins to browse the other volunteers’ profiles. He notices that he has common interests with the majority of them and convinces himself to fill in the form to request the membership. In order to do that, Marshall:

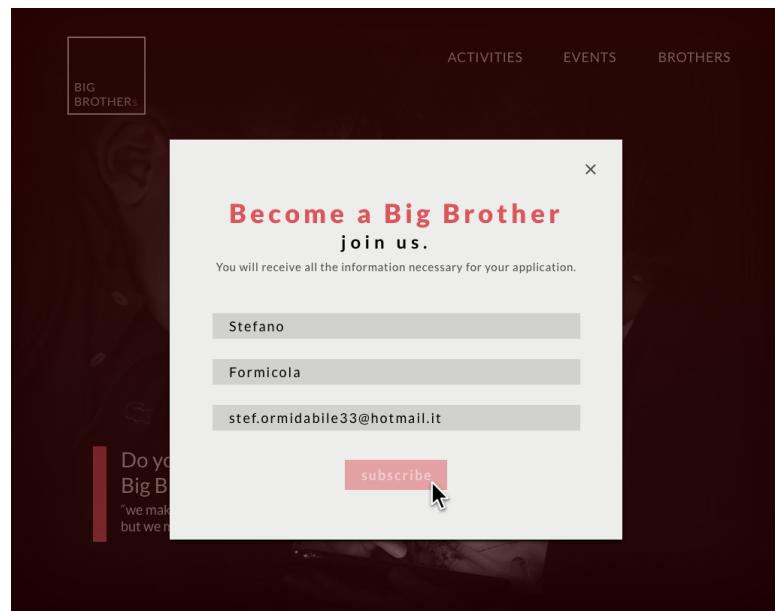
- clicks on the association logo in the top-left corner of the page and lands on the homepage;

The image shows a screenshot of a website. At the top, there is a black and white photograph of a group of people standing in a line with their arms around each other's shoulders, viewed from behind. Overlaid on the photo is the word "BROTHERS" in large, bold, sans-serif letters, with the tagline "we'll do the rest" underneath. In the top left corner of the photo, there is a small white square containing the text "BIG BROTHER". Above the photo, there are three navigation links: "ACTIVITIES", "EVENTS", and "BROTHERS". Below the photo, the name "Amina" is written in a large, semi-transparent font. Underneath "Amina", there is a circular profile picture of a young woman with dark hair, smiling. Her name, "Amina Pina", is displayed in bold text, followed by the location "San Marco in Lamis, Italy (FG)". Below her name, there is a paragraph of text about her background and current activities. At the bottom right of the profile section, there is a dark rectangular box containing a quote: "No one is useless in this world who lightens the burdens of another". Below the quote, the name "Amina Pina" is written again.

- clicks on the “+” button under the title “Become BBs.”;



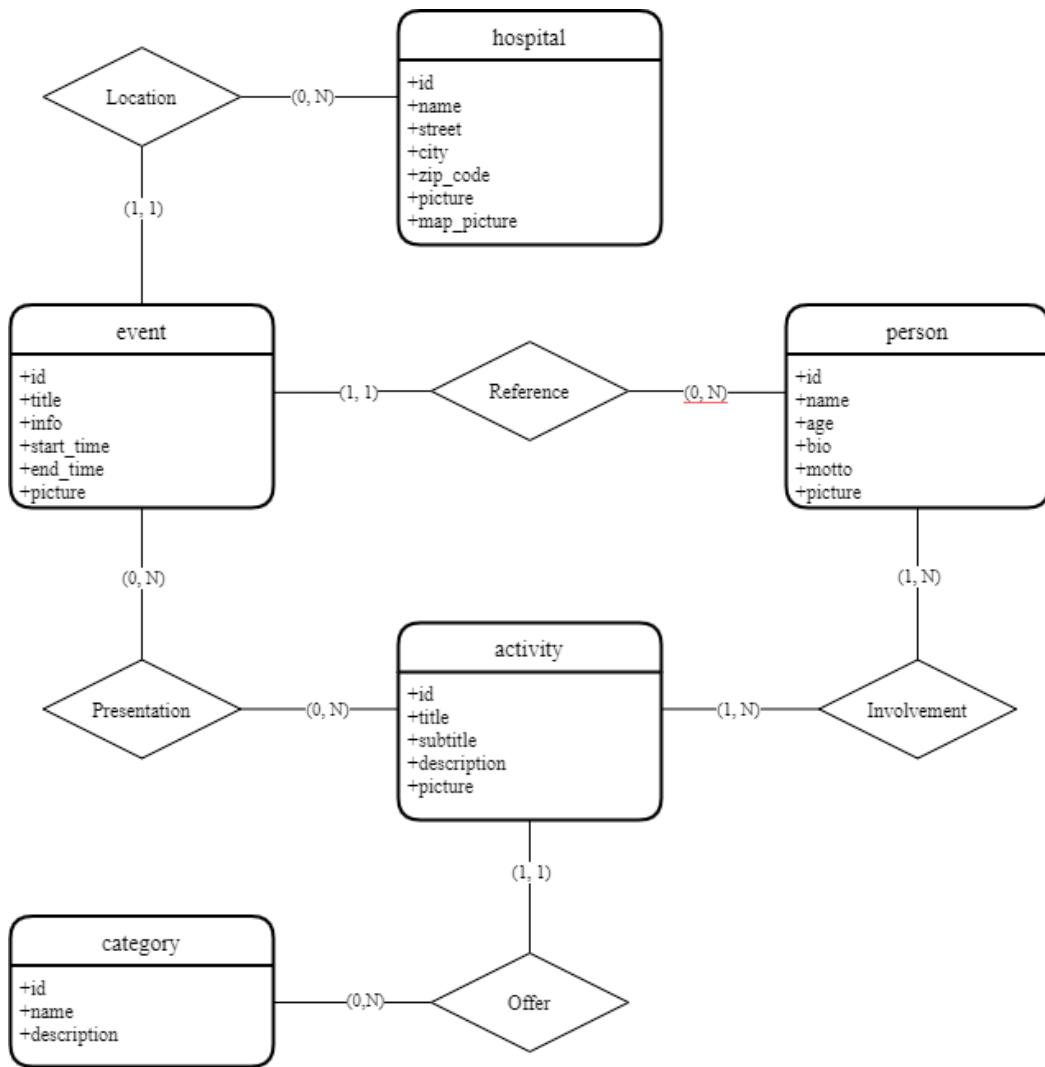
- compiles the form which has popped up and finally clicks on “subscribe” (right after that, he will receive an email to the mail address provided in the form compilation, containing further information and details).



# Chapter 6

## DB design

### 6.1 E-R diagram



Entity-Relationship diagram

## 6.2 Relational Tables

activity	
PK	<u>id: integer</u>
FK	<u>category_id: integer</u>
	title: text
	subtitle: text
	description: text
	picture: text

brother	
PK	<u>id: integer</u>
	name: text
	age: integer
	bio: text
	motto: text
	picture: text

event	
PK	<u>id: integer</u>
FK	<u>person_id: integer</u>
FK	<u>hospital_id : integer</u>
	title: text
	info: text
	start: timestamp
	end: timestamp
	picture: text

hospital	
PK	<u>id: integer</u>
	name: text
	street: text
	city: text
	zip_code: text
	picture: text
	map_picture: text

involvement	
PK,FK1	<u>service_id: integer</u>
PK,FK2	<u>person_id: integer</u>
presentation	
PK,FK1	<u>service_id: integer</u>
PK,FK2	<u>event_id: integer</u>

category	
PK	<u>id: integer</u>
	name: text
	description: text

Relational Tables