



**POLITECNICO**  
**MILANO 1863**

DEPARTMENT OF ELECTRONICS, INFORMATION AND BIOENGINEERING

# Design Report

## HYPERMEDIA APPLICATIONS

**Project link:** <https://hypermedia-project-2022.herokuapp.com/>

**Repository link:** <https://github.com/Stefano-Civelli/HypermediaProject-2022>

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# 1 Abstract

The project consists of an implementation of a tourists city guide website. In particular we chose the city of Milan as subject of our work.

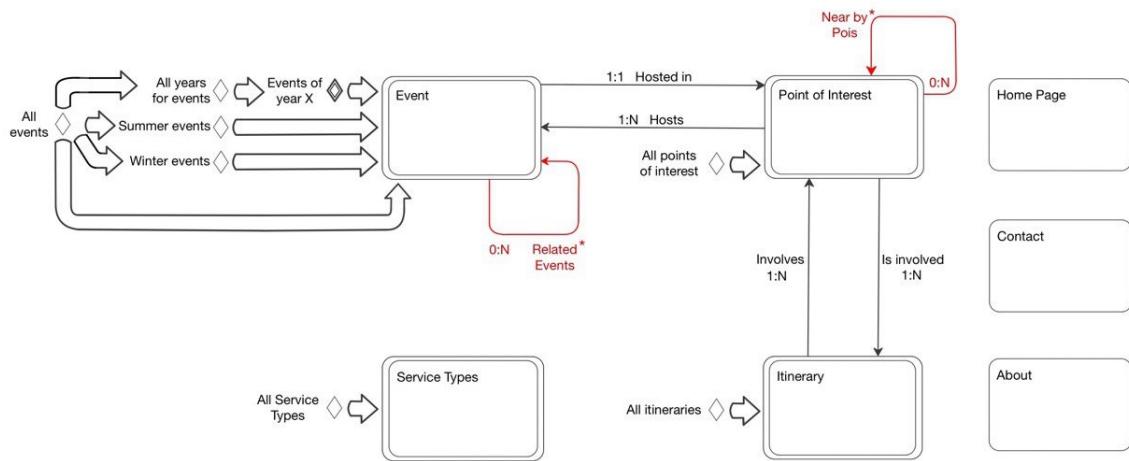
This document contains an overview of the design process and main design decisions we made before and during the implementation phase.

At first there is a content in the small diagram, immediately followed by the related content tables. Then we move on to the abstract pages that we created combining the two previous steps. In the last part we provide commented high-level wireframes highlighting the components used and links present in the pages followed by the ER diagram describing how we decided to design the database and three scenarios showing possible user-website interactions.

More information, mainly about implementation-related aspects, are available in the project repo linked in the cover page.

## 2 C-IDM Diagram

Below is the C-IDM diagram showing the content organization we chose for the website



\* These relationships are NOT requested by the specification but we decided to add them because we thought that could improve website usability and aesthetic

**Figura 1:** C-IDM diagram

### 3 Content-in-the-small tables

This chapter contains a list of all content in the small tables included in our website.

#### 3.1 Landmarks

Landmarks are the same for all pages (the one present in the navbar) so we are putting them in this separate section instead of repeating them in all tables.

Landmarks are: [Home](#), [All events](#), [Summer events](#), [Winter events](#), [Events by year](#), [Points of interest](#), [Itineraries](#), [Services](#), [About](#), [Contact us](#).

#### 3.2 Kind of Topic tables

Itinerary	
<b>Itinerary Name</b>	Text (max 30 char)
<b>Itinerary Image</b>	Image
<b>Itinerary Description</b>	Text (max 200 words)
<b>Itinerary Map</b>	Map
<b>Itinerary Duration</b>	Time (hours)
<b>Number of included attractions</b>	Integer

Event	
<b>Event Name</b>	Text (max 30 char)
<b>Event Image</b>	Image
<b>Event Description</b>	Text (max 200 words)
<b>Starting Date</b>	Date
<b>Ending Date</b>	Date
<b>Ticket Cost</b>	Integer

Service Type	
<b>Service Type Name</b>	Text (i.e. "Pharmacy", "Bank", "Hospital" ....)
<b>Services</b>	LIST OF [Service name, opening hours, address, cellphone number, map that shows the position of the service]

Point of Interest	
<b>Point of Interest Name</b>	Text (max 30 char)
<b>Point of Interest Image</b>	Image
<b>Point of Interest Description</b>	Text (max 200 words)
<b>Opening hours</b>	Text (max 10 word)
<b>Ticket Cost</b>	Integer
<b>Point of Interest Location</b>	Map

### 3.3 Group tables

All Events	
Group Title	"Events"
Header Image	Image
Items Preview	LIST OF [Event Name, Event Thumbnail Image, Event Location, Event Starting and Ending dates]

Winter Events	
Group Title	"Winter Events"
Header Image	Image
Items Preview	LIST OF [Event Name, Event Thumbnail Image, Event Starting and Ending dates, Event Location]

Summer Events	
Group Title	"Summer Events"
Header Image	Image
Items Preview	LIST OF [Event Name, Event Thumbnail Image, Event Starting and Ending dates, Event Location]

All Service Types	
Group Title	"Services you might need"
Header Image	Image
Items Preview	LIST OF [Service Type Name, Service Type Thumbnail Image, Text (max 15 words)]

All Itineraries	
Group Title	"Itineraries"
Header Image	Image
Items Preview	LIST OF [Itinerary Name, Itinerary Thumbnail Image, Itinerary short description, Itinerary duration]

All Points of interest	
Group Title	"Points of interest"
Header Image	Image
Items Preview	LIST OF [Point of Interest Name, Point of Interest Thumbnail Image, Point of Interest Location]

All Events by Year	
Group Title	"Events by Year"
Header Image	Image
Items Preview	LIST OF [Thumbnail Image of an Event that takes place in that year, Year, Text (max 10 words)]

### 3.4 Multiple Group tables

Events of Year X	
<b>Group Title</b>	"Events of [year X]"
<b>Header Image</b>	Image
<b>Items Preview</b>	LIST OF [Event Name, Event Thumbnail Image, Event Location and Event starting date]

### 3.5 Topic tables

Home	
<b>Title</b>	"Welcome to Milan!"
<b>Short Description</b>	Text (max 100 words)
<b>Small picture</b>	Image

Contact	
<b>Title</b>	"Contact Us"
<b>Cellphone Number</b>	Number
<b>Customer Care Form</b>	Form
<b>Sales and Marketing Form</b>	Form

About	
<b>Title</b>	"About the city"
<b>Short Description</b>	LIST OF [Title, Text (max 100 words)]
<b>Small picture</b>	Image

## 4 Abstract pages

Here is a rundown of all abstract pages we used in the website with related structural, group and transition links and the related content in the small tables.

### 4.1 Kind of Topic pages

Event	
<b>Event Name</b>	Text (max 30 char)
<b>Event Image</b>	Image
<b>Event Description</b>	Text (max 200 words)
<b>Starting Date</b>	Date
<b>Ending Date</b>	Date
<b>Ticket Cost</b>	Integer
<b>Transition links</b>	<ul style="list-style-type: none"> <li>- Point of interest in which the event is held</li> </ul>
<b>Group links</b>	<ul style="list-style-type: none"> <li>- Next event</li> <li>- Previous Event</li> <li>- Up to all events</li> <li>- Up to other events of that season</li> <li>- Up to other events of that year</li> <li>- LIST OF [Related events]</li> </ul>

Itinerary	
<b>Itinerary Name</b>	Text (max 30 char)
<b>Itinerary Image</b>	Image
<b>Itinerary Description</b>	Text (max 200 words)
<b>Itinerary Map</b>	Map
<b>Itinerary Duration</b>	Time (hours)
<b>Number of included attractions</b>	Integer
<b>Transition links</b>	<ul style="list-style-type: none"> <li>- LIST OF [Point of interest touched by the itinerary]</li> </ul>
<b>Group links</b>	<ul style="list-style-type: none"> <li>- Next itinerary</li> <li>- Previous itinerary</li> <li>- Up to all itineraries</li> </ul>

Service Type	
<b>Service Type Name</b>	Text (i.e. "Pharmacy", "Bank", "Hospital" ...)
<b>Services</b>	LIST OF [Service name, opening hours, address, cellphone number, map that shows the position of the service]
<b>Transition links</b>	NONE
<b>Group links</b>	<ul style="list-style-type: none"> <li>- Up to all types</li> </ul>

Point of Interest	
<b>Point of Interest Name</b>	Text (max 30 char)
<b>Point of Interest Image</b>	Image
<b>Point of Interest Description</b>	Text (max 200 words)
<b>Opening hours</b>	Text (max 10 word)
<b>Ticket Cost</b>	Integer
<b>Point of Interest Location</b>	Map
<b>Transition links</b>	<ul style="list-style-type: none"> <li>- LIST OF [Event hosted in the point of interest]</li> <li>- LIST OF [Itinerary in which the point of interest is one of the steps]</li> </ul>
<b>Group links</b>	<ul style="list-style-type: none"> <li>- Next point of interest</li> <li>- Previous point of interest</li> <li>- Up to all points of interest</li> <li>- LIST OF [Point of interest next to the current one]</li> </ul>

## 4.2 Group pages

All Events	
Group Title	"Events"
Header Image	Image
Items Preview	LIST OF [Event Name, Event Thumbnail Image, Event Location, Event Starting and Ending dates]
Group links	<p>Link to:</p> <ul style="list-style-type: none"> <li>- Summer Events group page</li> <li>- Winter Events group page</li> <li>- Events by Year group page</li> <li>- LIST OF [Event]</li> </ul>

Winter Events	
Group Title	"Winter Events"
Header Image	Image
Items Preview	LIST OF [Event Name, Event Thumbnail Image, Event Starting and Ending dates, Event Location]
Group links	<p>Link to:</p> <ul style="list-style-type: none"> <li>- LIST OF [Winter Event]</li> <li>- Up to All Events group page</li> </ul>

Summer Events	
Group Title	"Summer Events"
Header Image	Image
Items Preview	LIST OF [Event Name, Event Thumbnail Image, Event Starting and Ending dates, Event Location]
Group links	<p>Link to:</p> <ul style="list-style-type: none"> <li>- LIST OF [Summer Event]</li> <li>- Up to All Events group page</li> </ul>

All Service Types	
Group Title	"Services you might need"
Header Image	Image
Items Preview	LIST OF [Service Type Name, Service Type Thumbnail Image, Text (max 15 words)]
Group links	<ul style="list-style-type: none"> <li>- LIST OF [Service Type]</li> </ul>

All Itineraries	
Group Title	"Itineraries"
Header Image	Image
Items Preview	LIST OF [Itinerary Name, Itinerary Thumbnail Image, Itinerary short description, Itinerary duration]
Group links	<ul style="list-style-type: none"> <li>- LIST OF [Itinerary]</li> </ul>

All Points of interest	
Group Title	"Points of interest"
Header Image	Image
Items Preview	LIST OF [Point of Interest Name, Point of Interest Thumbnail Image, Point of Interest Location]
Group links	<ul style="list-style-type: none"> <li>- LIST OF [Point of Interest]</li> </ul>

All Events by Year	
Group Title	"Events by Year"
Header Image	Image
Items Preview	LIST OF [Thumbnail Image of an Event that takes place in that year, Year, Text (max 10 words)]
Group links	<p>Link to:</p> <ul style="list-style-type: none"> <li>- LIST OF [Event of Year X group pages]</li> <li>- Up to All Events group page</li> </ul>

### 4.3 Multiple Group pages

Events of Year X	
Group Title	"Events of [year X]"
Header Image	Image
Items Preview	LIST OF [Event Name, Event Thumbnail Image, Event Location and Event starting date]
Group links	<p>Link to:</p> <ul style="list-style-type: none"> <li>- Next Year</li> <li>- Previous Year</li> <li>- LIST OF [Event]</li> <li>- Up to All Events by Year and All Events group pages</li> </ul>

### 4.4 Topic pages

Home	
Title	"Welcome to Milan!"
Short Description	Text (max 100 words)
Small picture	Image
Structural links	NONE
Transition links	<ul style="list-style-type: none"> <li>- LIST OF [Event]</li> <li>- LIST OF [Itinerary]</li> <li>- About</li> </ul>

Contact	
Title	"Contact Us"
Cellphone Number	Number
Customer Care Form	Form
Sales and Marketing Form	Form
Structural links	NONE

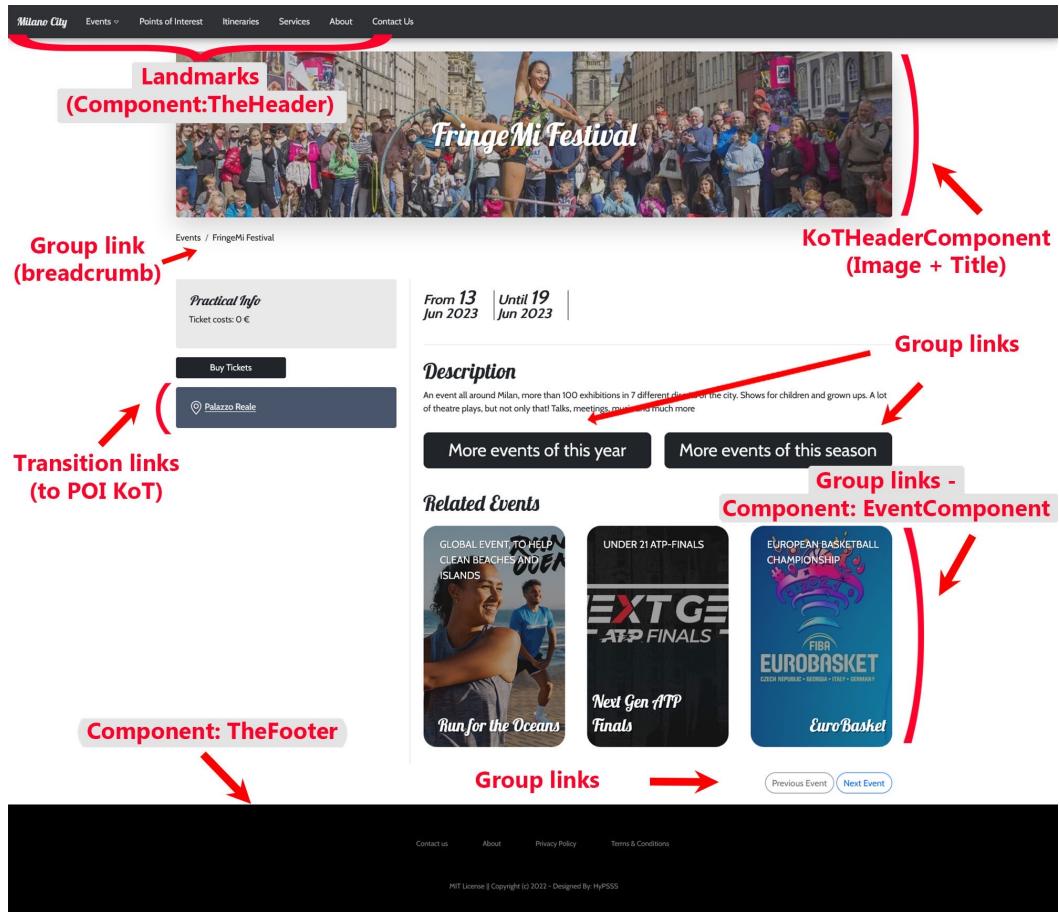
About	
Title	"About the city"
Short Description	LIST OF [Title, Text (max 100 words)]
Small picture	Image
Structural links	NONE

## 5 Wireframes

Here are the High fidelity wireframes of all the abstract pages of our website

### 5.1 Event KOT page

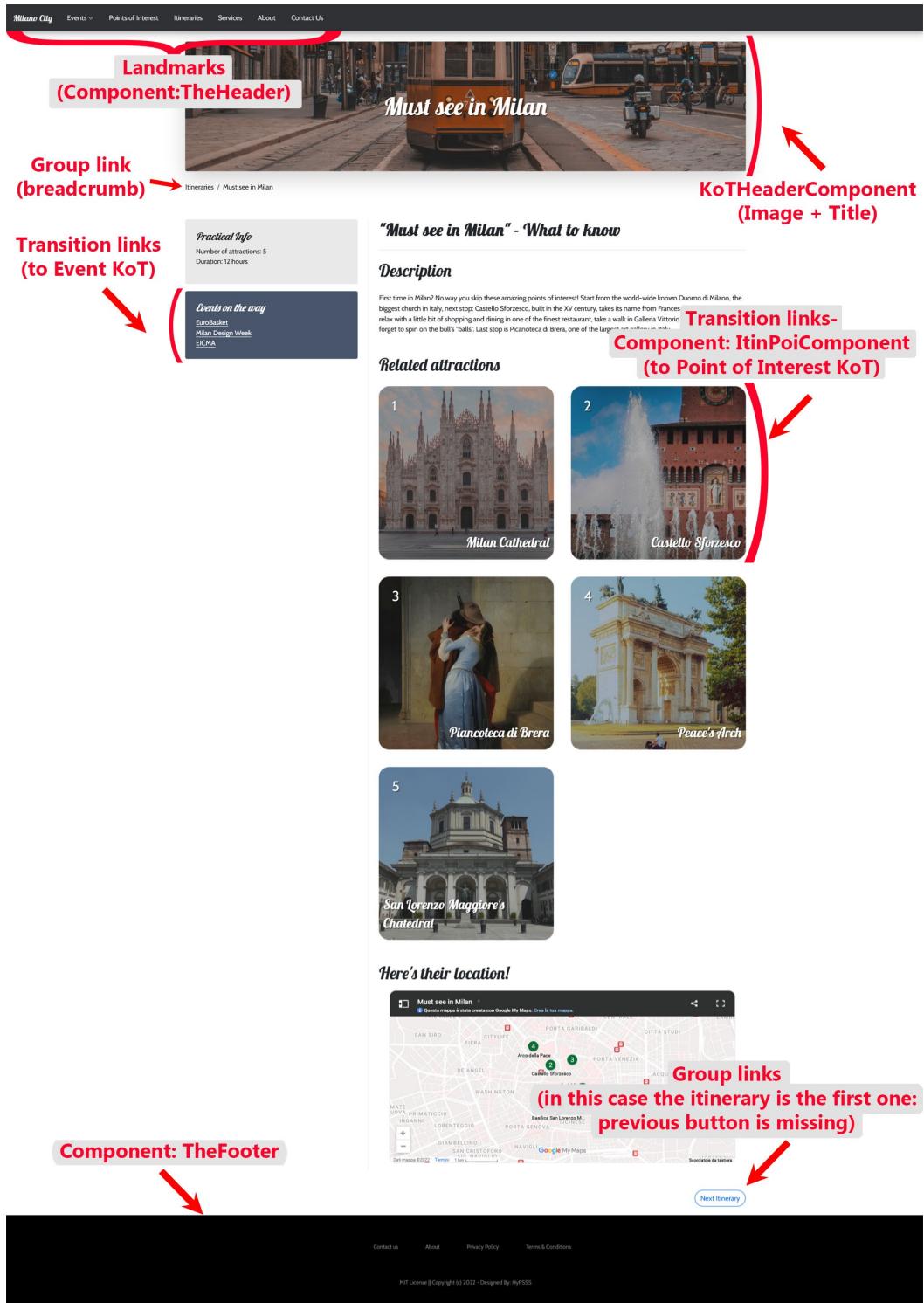
This wireframe corresponds to the abstract page "Event" reported in section 4.1.



**Figura 2:** Event kind of topic page wireframe

## 5.2 Itinerary KOT page

This wireframe corresponds to the abstract page "Itinerary" reported in section 4.1.



**Figura 3:** Itinerary kind of topic page wireframe

### 5.3 Service Type KOT page

This wireframe corresponds to the abstract page "Service Type" reported in section 4.1.

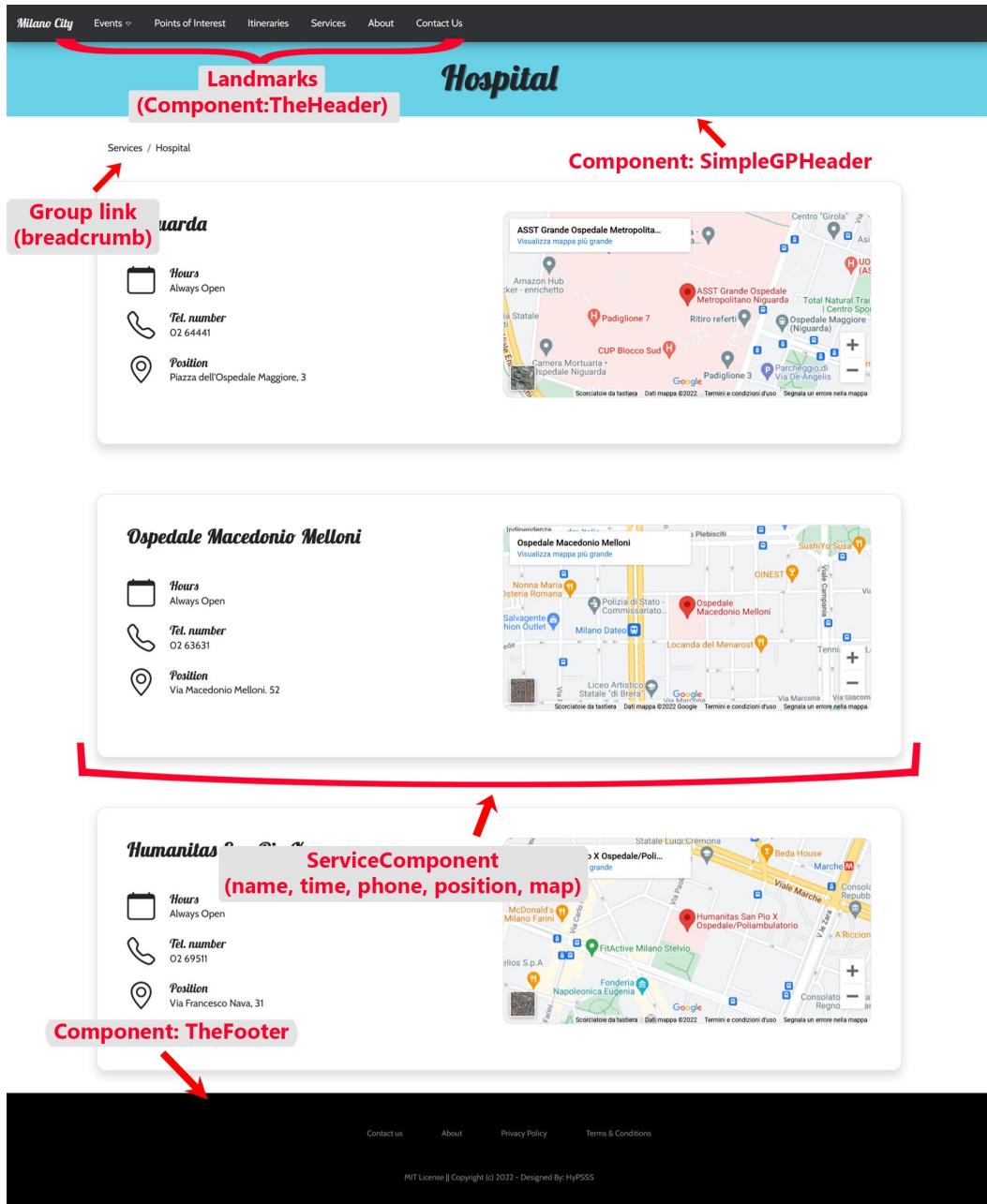


Figura 4: Service Type kind of topic page wireframe

## 5.4 Point of Interest KOT page

This wireframe corresponds to the abstract page "Point of Interest" reported in section 4.1.

**Component: TheHeader**

**KoTHeaderComponent (Image + Title)**

**Group link (breadcrumb)**

**Transition links (to Itinerary KoT)**

**Appears in the following Itineraries**

**Description**

The Duomo di Milano, the Cathedral at the heart of the city, is an architectural masterpiece that remains imprinted in the memory of all those who visit Milano. The thousands of intricately carved spires and statues, like a marble forest, are an awesome sight for those exiting the Metro or arriving from Galleria Vittorio Emanuele. It is not surprising to learn that its construction, which began in 1386 and lasted almost half a millennium, was commissioned by the Duke of Milano Gian Galeazzo Visconti as a symbol of the glory and grandeur of the city. Milano's Duomo is the largest and most elaborate Gothic building in Italy; made of pink-hued white marble from a dedicated quarry, it is 157 metres in length and 108.5 metres high at the top of the main spire, where rests the glistening golden statue of the Madonnina, an evocative symbol much-loved both by all Milanese and visitors. It is not generally known that there are quite a few copies of Milano's Madonnina around the world, including one on Mount Everest.

**Where is it?**

A map showing the location of the Duomo di Milano in Milan, Italy. The map includes labels for Piazza Paolo Ferrari, Piazza Can Fedele, Galleria Vittorio Emanuele II, Piazza Filippo Meda, LEGOR Camifredi Store San Babila, Piazza dei Mercanti, Palazzo Reale Milano, Piazza Santa Maria Beltrada, Piazza Armando Diaz, Largo Lodrono Schuster, Piazza Fontana, Santuario di San Bernardino alle Ossa, and various streets and landmarks.

**Events held here**

**Transition links - Component: EventComponent**

**Group links - Component: ItinPoiComponent**

**Near by**

You found yourself near **Milan Cathedral**? Check out these other incredible places near by that you might be interested in.

**Bosco Verticale**

**Science and Technology Museum**

**Group links (the itinerary is the first one: previous button is missing)**

**Peace's Arch**

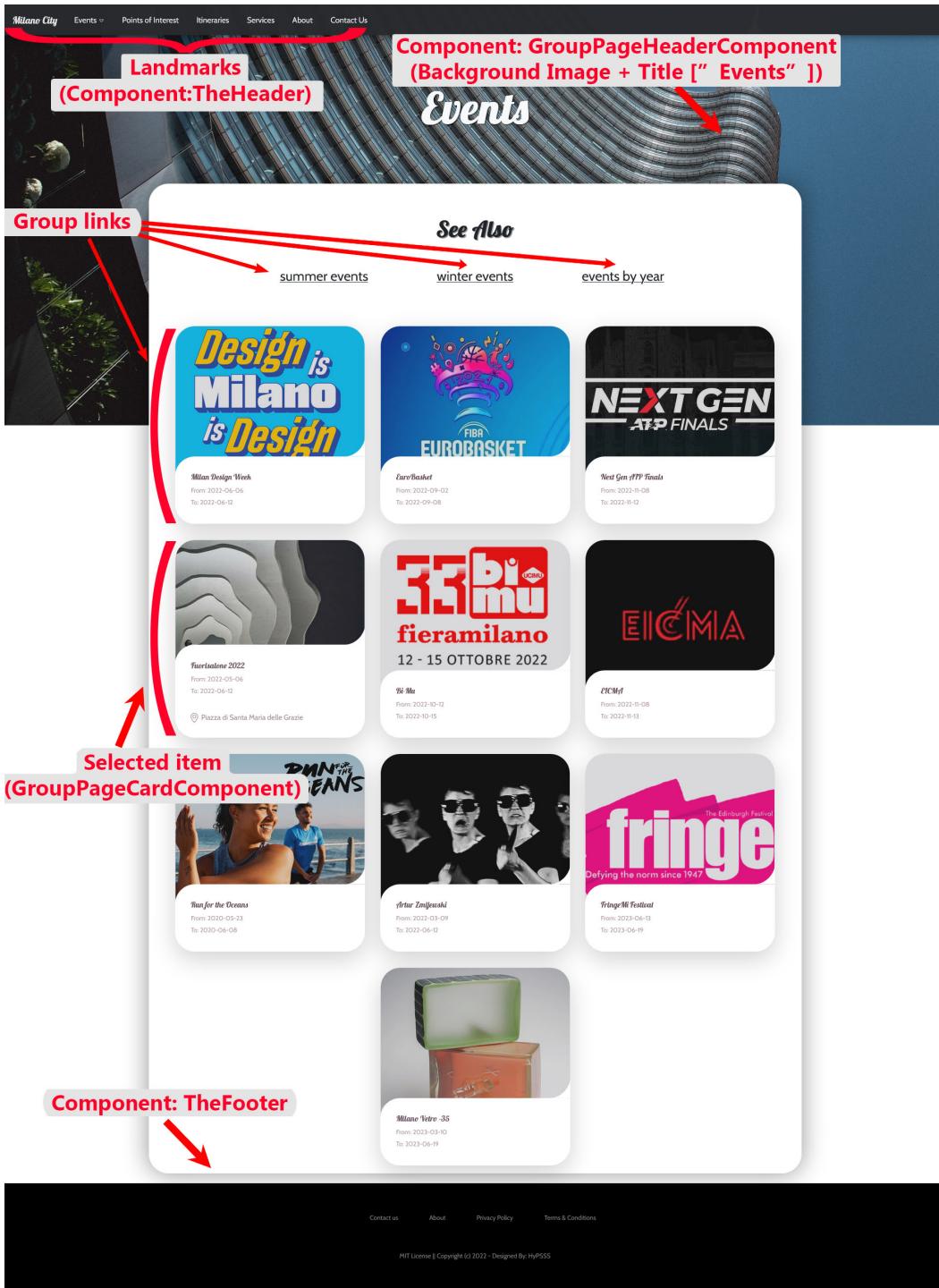
**Component: TheFooter**

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**Figura 5:** Point of Interest kind of topic page wireframe

## 5.5 All Events Group page

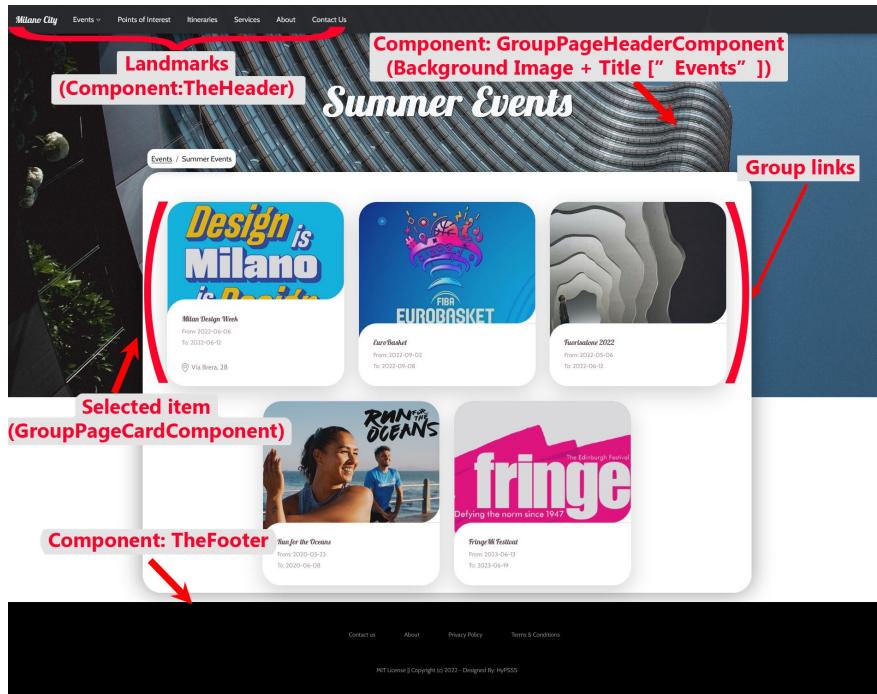
This wireframe corresponds to the abstract page "All Events" reported in section 4.2.



**Figura 6:** All Events Group page wireframe

## 5.6 Summer Events Group page

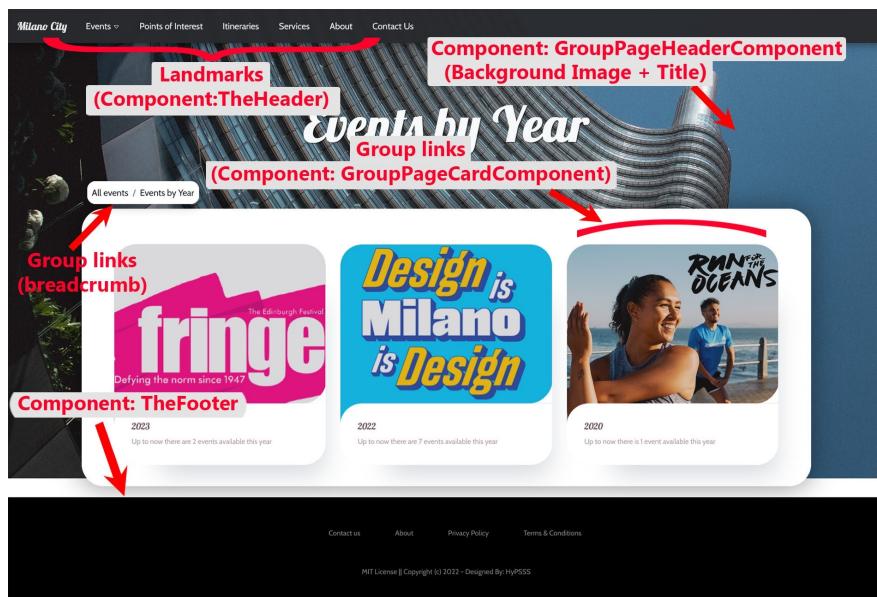
This wireframe corresponds to the abstract page "Summer Events" reported in section 4.2. Only one example from the 2 is shown since they are exactly the same.



**Figura 7:** Summer Events Group page wireframe

## 5.7 All events by year Group page

This wireframe corresponds to the abstract page "All Events by Year" reported in section 4.2.



**Figura 8:** All events by year Group page wireframe

## 5.8 All service types Group page

This wireframe corresponds to the abstract page "All Service Types" reported in section 4.2.

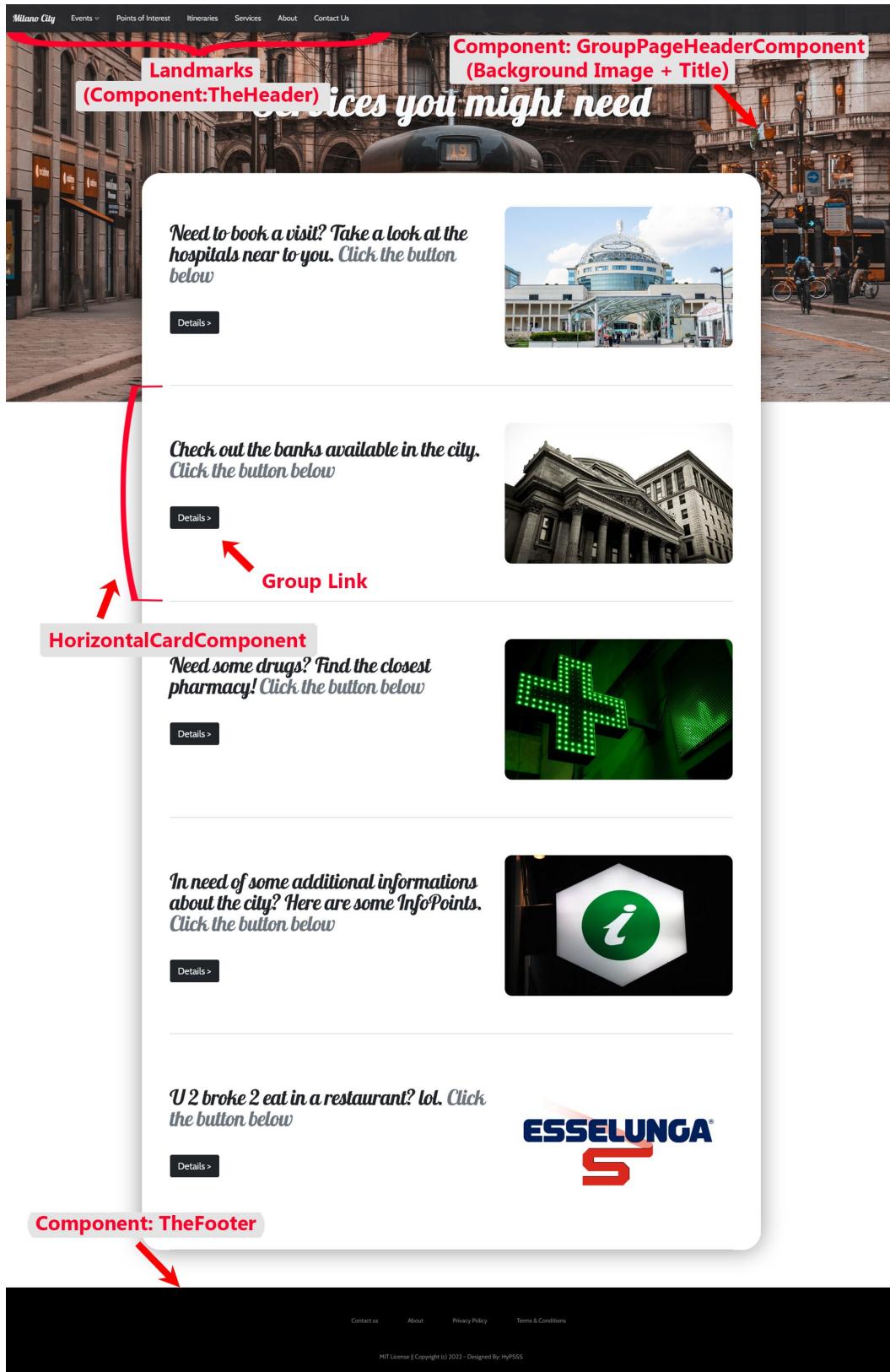
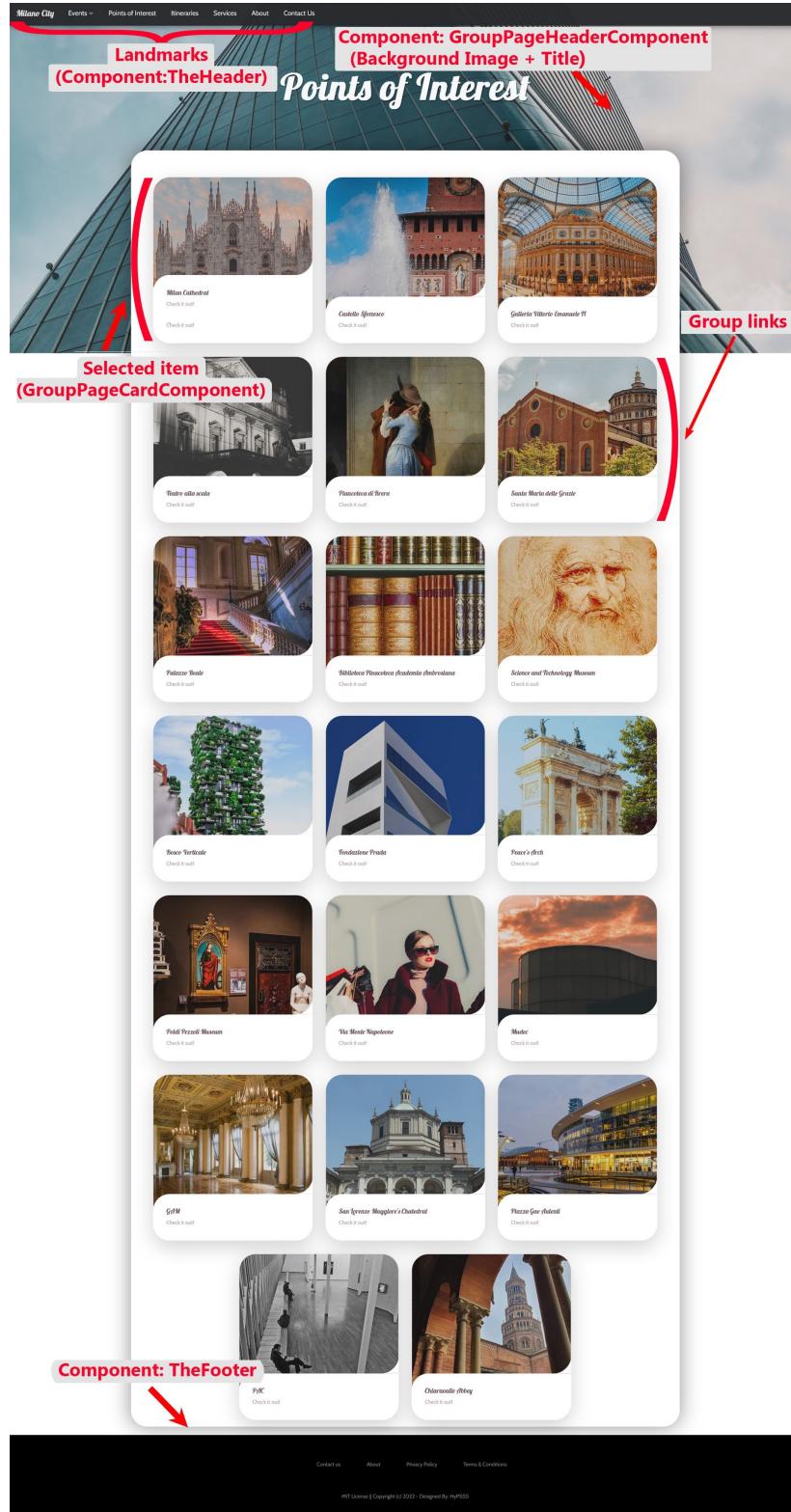


Figura 9: All service types Group page wireframe

## 5.9 All Points of Interest/All Itineraries Group page

This wireframe corresponds to the abstract page "All Points of Interest"/"All Itineraries" reported in section 4.2.

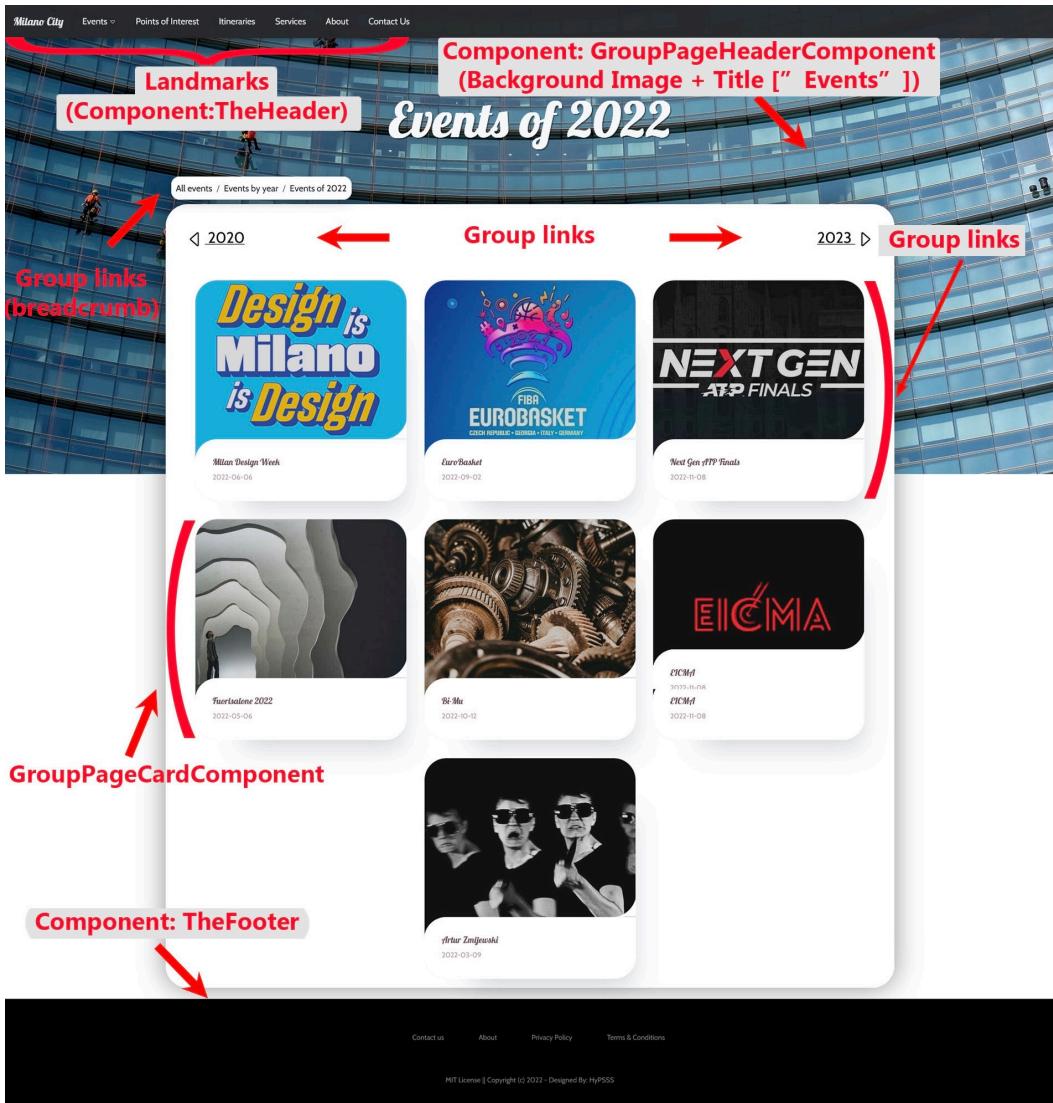
Only one example from the 2 is shown since they are exactly the same.



**Figura 10:** Point of Interest Group page wireframe

## 5.10 All events of year X Multiple Group page

This wireframe corresponds to the abstract page "Events of Year X" reported in section 4.3.



**Figura 11:** All events of year X Multiple Group page wireframe

## 5.11 Home topic page

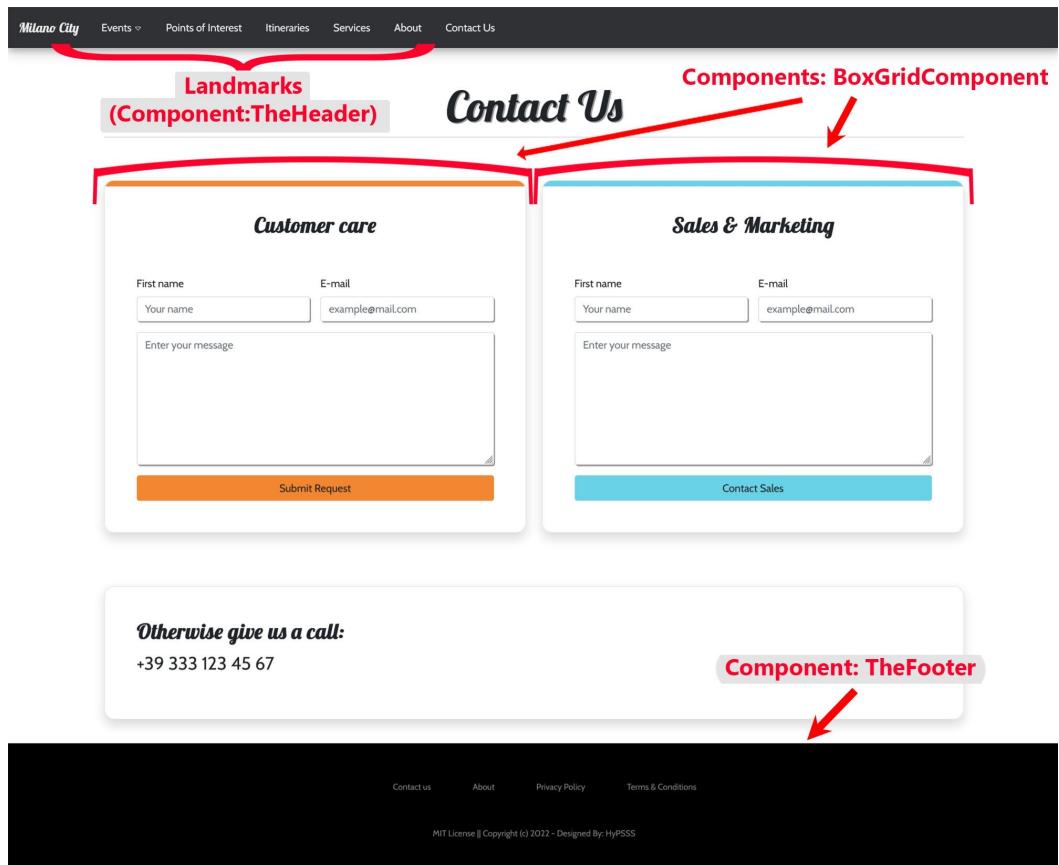
This wireframe corresponds to the abstract page "Home" reported in section 4.4.

The wireframe illustrates the structure of the Milan City website's home page. At the top, a navigation bar includes links for Milan City, Events, Points of Interest, Itineraries, Services, About, and Contact Us. Below the navigation is a yellow header section featuring the text "Landmarks (Component: TheHeader) Milan!" and a small image of the Milan Cathedral. A red bracket labeled "Components: BoxGridComponent" points to a section titled "Check out our Hottest events..." which displays three cards: "MOST IMPORTANT ITALIAN EXHIBITION ABOUT ROBOTS Bi-Mu", "UNDER 21 ATP-FINALS NEXT GEN ATP FINALS", and "CONTEMPORARY ART EXHIBITION Artur Zmijewski". Red arrows labeled "Transition Links - Component: EventComponent" point from the "Bi-Mu" card to a section titled "...and the Coolest itineraries!". This section contains a text snippet about must-see attractions in Milan, a "Details >" button, and a photograph of the cathedral. Another red arrow labeled "Transition Links (to itinerary KoT) - Component: HorizontalCardComponent" points from the "Artur Zmijewski" card to a section about museums in Milan, featuring a text snippet, a "Details >" button, and a photograph of the Pinacoteca di Brera. A third red arrow labeled "Component: TheFooter" points to a footer section at the bottom of the page, which includes links for Contact us, About, Privacy Policy, and Terms & Conditions, along with a note about the MIT license and copyright information.

**Figura 12:** Home topic page wireframe

## 5.12 Contact topic page

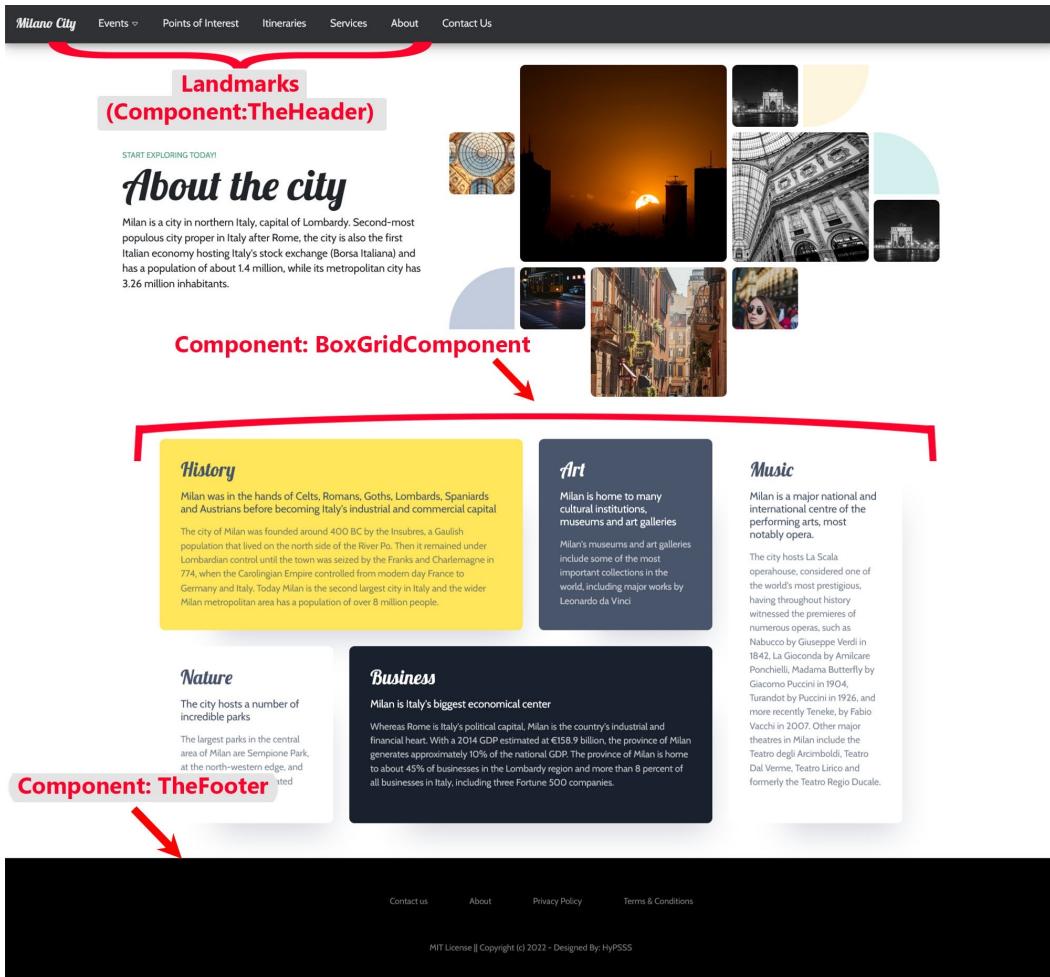
This wireframe corresponds to the abstract page "Contact" reported in section 4.4.



**Figura 13:** Contact topic page wireframe

## 5.13 About topic page

This wireframe corresponds to the abstract page "About" reported in section 4.4.



**Figura 14:** About topic page wireframe

## 6 Database design

Below is the ER diagram that models the database configuration

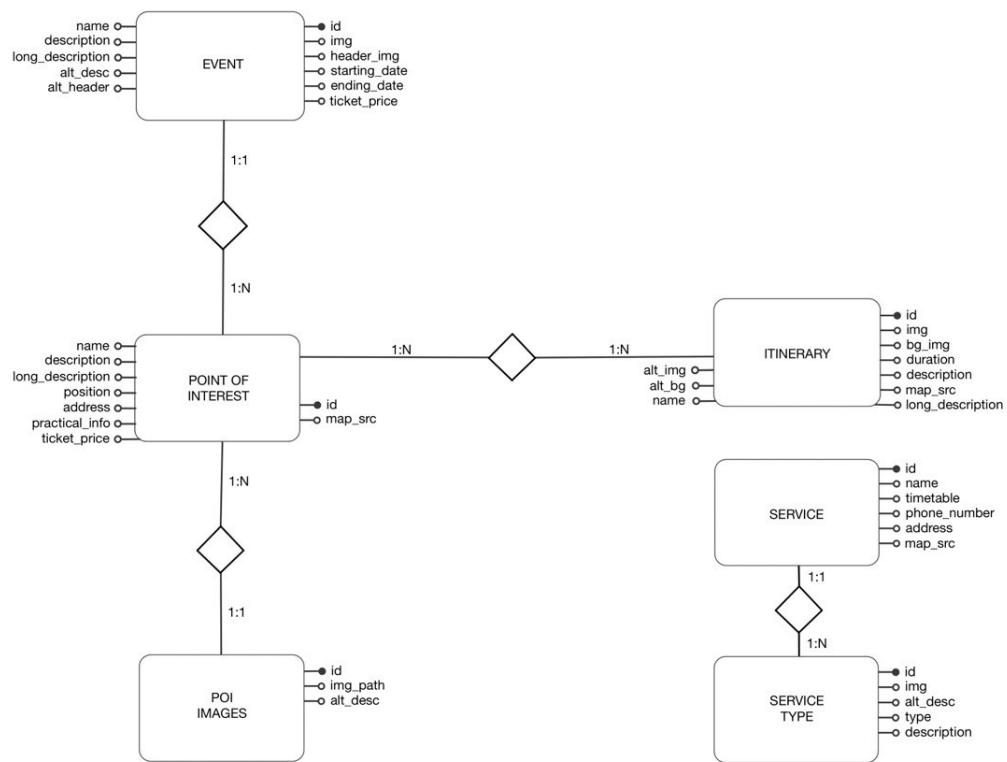


Figura 15: ER diagram

## 7 Interaction scenarios

In this section we present some possible use case scenarios of our website. All scenarios include a **short story** and a series of images showing the user-website interaction procedure.

### 7.1 Scenario 1

A couple of tourists are already in Milan and want to organize their next day in the city. First thing they immediately take the smartphone and look on their favourite website: "MilanoCityGuide". Right on the homepage they can immediately see a list of suggested itineraries. They take a look at the first one at the top by clicking on "details". It reveals to be too long for them since that same they will also have to head back home, so they look at the second one and same story: too long. After this minor setback they choose to head to the itinerary section where they can see at a glance all the itineraries and their duration right from the home page. So they choose one that meets their needs and take a look at all the Points of interest involved in the itinerary from the included map.

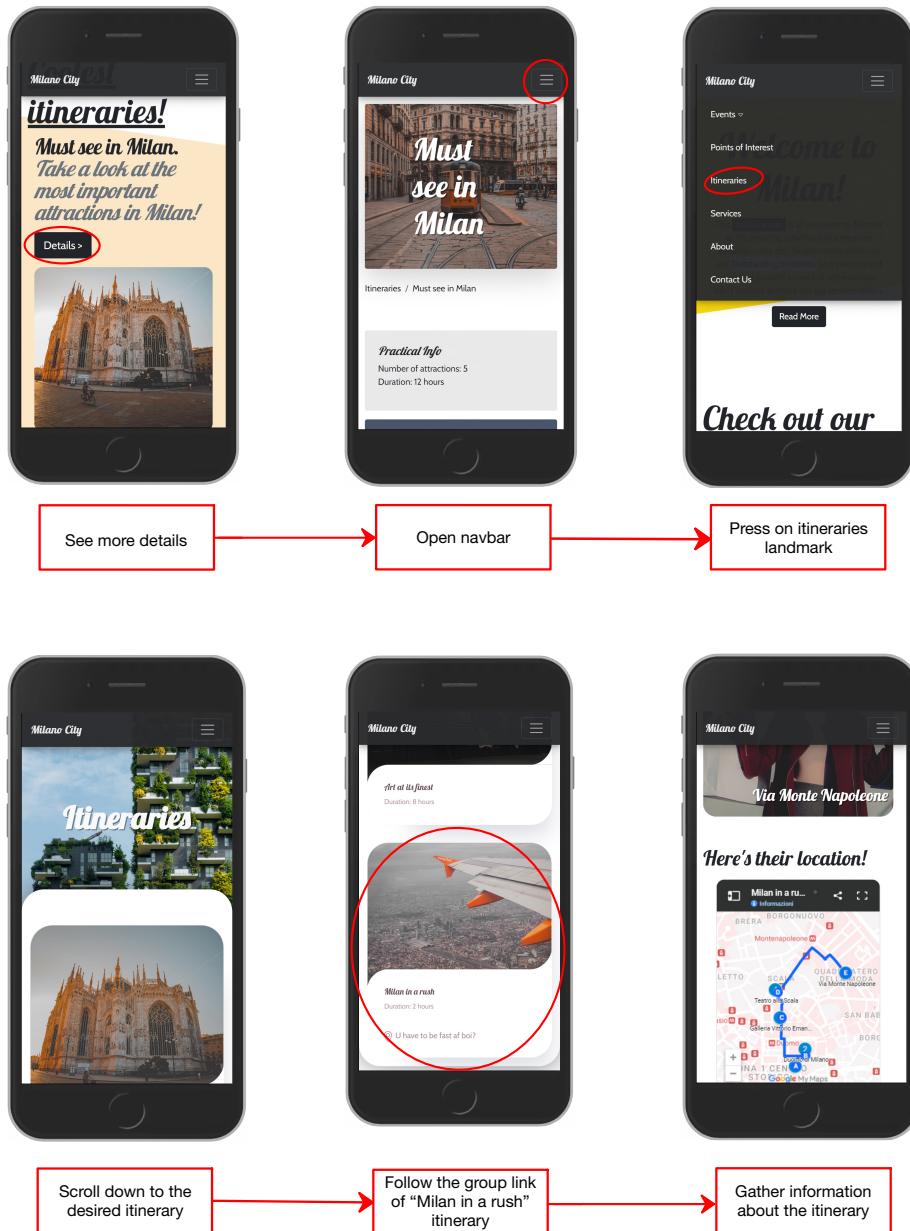
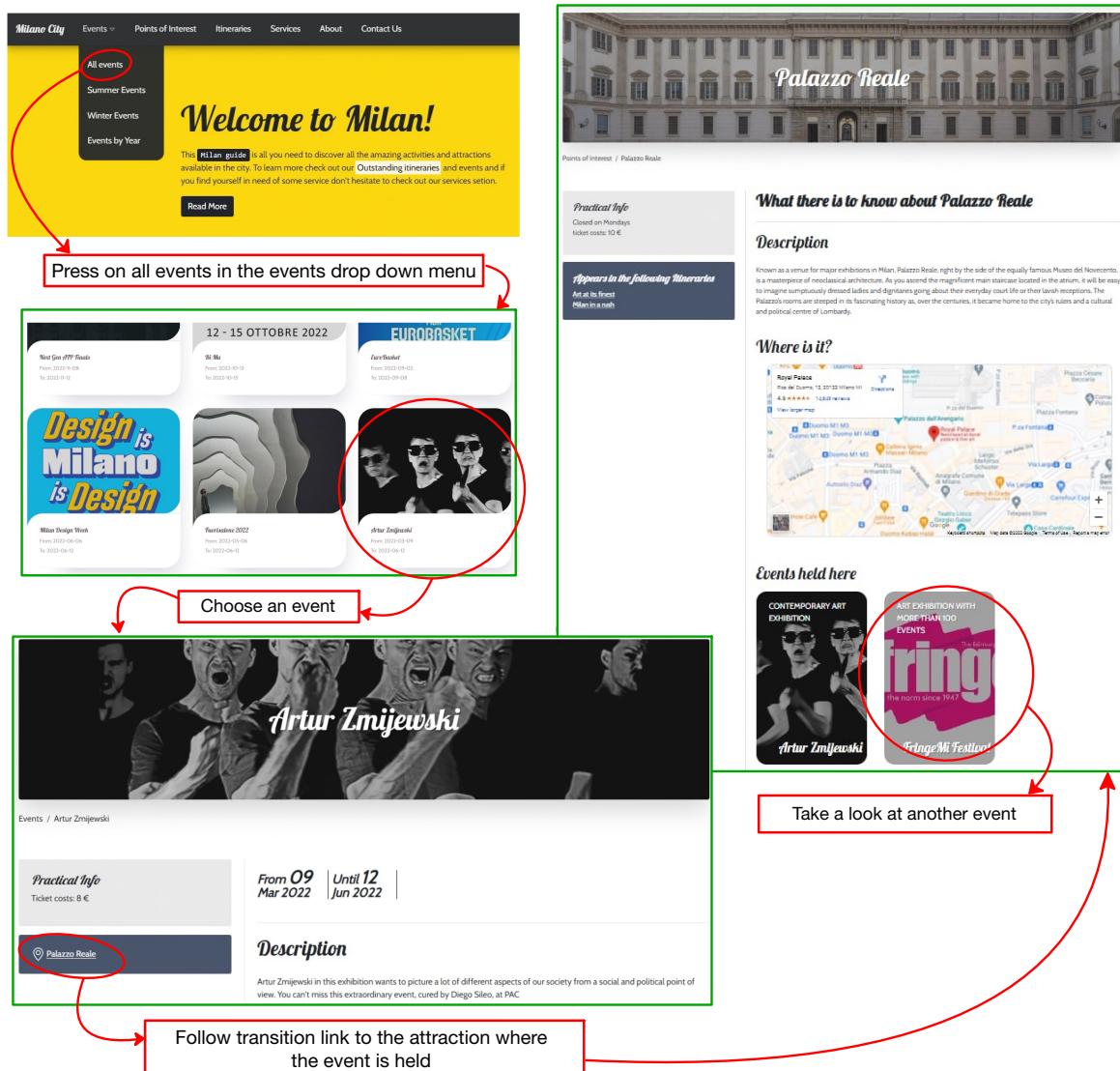


Figura 16: First scenario flow diagram

## 7.2 Scenario 2

Bob is really passionate about art and history. He will be in town only for one more day so he is planning to visit at least 2 museums of his interest in this remaining time. To make plans he chose to go on the "MilanoCityGuide" website and particularly in the "All Events" section. There he finds the "Artur Zmijewski" art exhibition; while he's here he finds out that the exhibition is located in "Palazzo reale" and so he goes on the lookout for other events located there so that he can visit both in his limited time. In the "Events held here" section of the location he finds out that there is another art exhibition near him. He then proceeds to gain information about both.



**Figura 17:** Second scenario flow diagram

### 7.3 Scenario 3

Alice and Bob found themselves in Milan for work reasons and figured that since they are already there they might enjoy a visit of the city. Since they know nothing about Milan they go to our website and land on the home page. After reading the introduction they go to the about page ("read more" button) to gather some more general info. Later that day they need to look up a pharmacy so they come again to our website and find information about the available pharmacies. When they get to the pharmacy they realize they don't have change so they look up ATMs on the website.

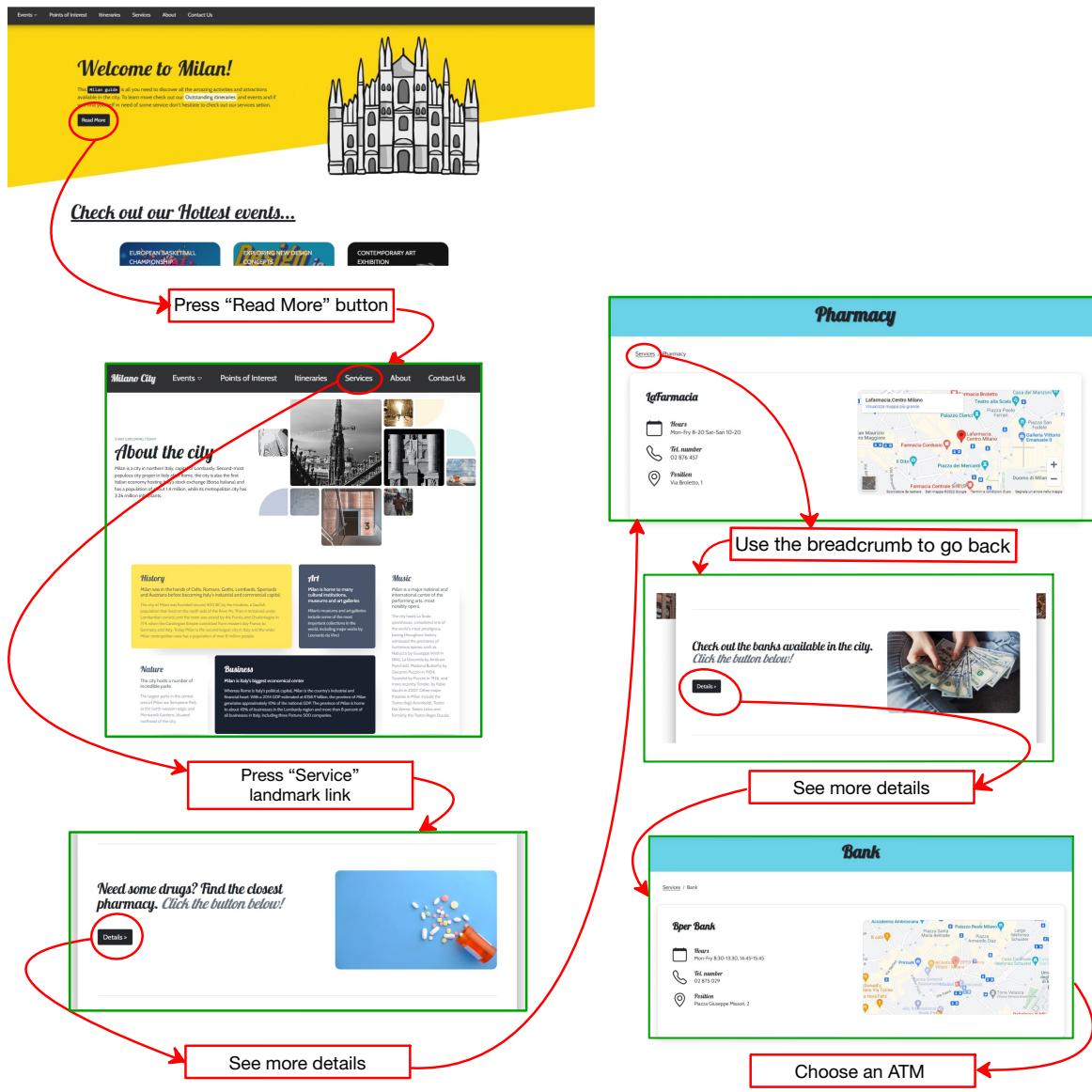


Figura 18: Third scenario flow diagram