KECH’N’ABOUT

Booking app

School of Science and Engineering

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Capstone Design

[Final Report]

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KESH 'N ABOUT

Capstone Report

Approved by the Supervisor(s)

Dr. Driss Kettani
Acknowledgement:

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Abstract:

Sitting at home deciding about what to eat for dinner and flipping to all the different menu's you have in front of you not knowing what to choose. We have all experienced this type of situation at some point in our lives and not only with food. It could be with booking a hotel, a massage, a car, or pretty much anything else that one can reserve ahead of time. With cities growing everywhere, try to imagine how much this is becoming an issue for people to keep up with their ever changing environment.

One solution for this is having a website that list in great details all the possible places that one might be interested in and that satisfy one's needs, and allows you to make a reservation at the place wanted. Rather than flipping all the menus that you almost forgot to save, it would be much easier to open your browser and flip to a website that has all the possible options near you. This would solve the problems of many people around the whole city where ever it is. Growing up in Marrakesh, this problem is quite evident.

KECH'N'ABOUT, which is the title of my project, is my solution to this problem. It will slowly grow into a larger website as our client list grows, being both the ones making the reservation and where that reservation is made.

Throughout this document, I will try to demonstrate how the solution proposed came to life with all the steps gone through to make such a solution possible.

Key words: Web service, PHP, MySQL, HTML/CSS, JavaScript, Ajax, reservation, city guide, special offers, geo-localization.
I. Introduction

Morocco may be a regional leader when it comes to tourism and welcoming people with different backgrounds from all over the world, but it certainly lacks accommodating these people with the right e-services to make them enjoy their stay even more. The idea behind our project is to promote (for a start) the beautiful Marrakech with all its restaurants, lounges, nightclubs and attractions in general and give the opportunity to our customers to get a reservation in their favorite places. An extension of the project in the future would be offering these services for the main big cities in Morocco. This report will contribute in the development of this project in the sense that it should give an initial understanding about the requirement specifications of the project, the analysis of these requirements, the development process and the technology to be used in order to implement our design.

II. Objectives of the Project

Our project aims to offer our web users a simple and fun way to get an idea about where to go out with friends and family. They would also get a reservation confirmation from the places they chose to go to. These users would also benefit from occasional coupons and deals that would allow them to enjoy their favorite places at an even more reduced price. The concept of “Kech’n’about” combines fun and utility all at once.

III. STEEPLE Analysis

Social and ethical aspects among various others are omnipresent in this project as the main idea behind this web platform is to promote Marrakech and help businesses flourish. This would mean that our society not only will benefit from the advertising through the platform, but also help individuals connect and share their interests. People would also have the opportunity to share their experiences and get together in renowned places. An ethical aspect of this project would be having all the businesses of a city grouped and presented to the public under one platform which allows them to have a fair competition when attracting customers.
Putting these words in a STEEPLE form instantiate the vision I have of the project and the aspects it touches upon:

Social – lifestyle changes, social mobility, social connections

Technology – development of a new web service

Economic – cost saving with the special offers, economic growth

Environment –

Political – enhancing the competition between businesses through the advertising done on the platform

Legal – insurance policies, risk management

Ethical – client confidentiality

IV. Description of the Website’s features

The following is a description of what the website should exhibit as functionalities to the user and what workflow is to be followed:

- After the web page is loaded, the user is automatically assigned the status of “guest”. It is important to mention that with this status, the user can only view the different pages of the website, not make a reservation. One can view the different “hang out” suggestions, go through the different webpages dedicated to the business partners, see other registered users’ comments and ratings and browse through the “special offers” section.

- The user can benefit from the reservation mechanism only once he signed up and logged in as a registered user. He can also post reviews and comments on those businesses and rate them.

- The user should be prompted to log in whenever he tries to perform an action restricted to registered users. (e.g. posting a comment or start the booking procedure)

- In the navigation bar of the website there is a link to the “Registration form” page if the user is a new one and has never been on the website before. Else, the
user can choose to Login in the same page by entering valid credentials consisting of an Email Address and a Password.

- The user can also apply to open a new partnership given he wants to promote his business and benefit from the booking platform. He should apply by filling a form that emphasizes on the business he owns and is convened to a meeting where further arrangements are dealt with.

- Once the partnership is confirmed and validated, valid credentials are created for these later by the administrator to log in there reserved section.

- Business partners are then conducted sing there credentials to a different interface where they could manage their reservations, post ads to be displayed on the platform homepage and suggest special offers for the web users.

- For the scope of the capstone class, users can click on the book button that should be implemented for all the businesses. Later on, only business partners can benefit from the booking procedures.

- The main home page should incorporate 3 sections:
  - A section where users can browse through different articles that introduce an idea or a suggestion of what to do best of their free time. These suggestions will accordingly list all the business places that serve that purpose. They can make a reservation in these different places afterwards if they are tempted to give it a try.
  - A section where users can browse by category through the different businesses that the platform presents; the categories are: Accommodations, restaurants and nightlife, leisure and well-being, travel and tourism.
  - A section where users can go through the different coupons and deals that our business partners would make available for them.

- For the special offers section, once the user chooses the offer interested in by clicking on the “book button”, a serial number will be generated. This serial number will serve as a reference to that deal to be able to benefit from it.

- Users should get their confirmation or reply to their reservation through text messages or emails.

- Features exclusive to business owners:
  - Business partners can:
+ Fill a form that specifies the current situation at that business place. They would specify the maximum capacity and how many instances of their products are still available for the reservation process.
+ Post an offer/deal to be displayed on the platform homepage
+ Respond to reviews/comments posted on their dedicated webpage.

- The administrator should be able to track down disrespectful comments or reviews and delete them.
- The Geo-localization feature should be used to indicate the location of the different business places.
- The website should also include a section called “about Us “or “about Kech’n’about” to be able to guide its users throughout their manipulation of the website and to introduce the different concepts made available for them.
- Finally, a “Contact Us” section should be available for the users so as to able to keep in touch with these later and receive valuable feedback concerning the websites and the main workflow in general.

V. Requirements Analysis

1. Functional requirements:

   - The web application shall enable users to sign up as “normal customers” seeking to use the platform to get reservations, to post reviews and comments and to rate the different places they already visited.
   - The platform shall make an application form available for the businesses seeking to use this later to manage their reservations and to promote their brand image.
   - Users shall be able to set up their profiles with their personal information and interests in various fields.
   - Users shall be prompted to log in whenever they try to perform an action restricted to registered users.
   - Users shall also have the opportunity to share their experience in those locations
with other people either through comments/reviews they will leave on the related pages or through ratings.

- Normal users shall be prompted with an interface that incorporates 3 distinct sections: the first section will suggest new ideas for users to discover and list the different places that offer these services, the second section will list the different coupons and deals made available by the business partners, and the third section will list all the attractions by category( whether it’s a hotel, a restaurant, a spa or ... )

- The websites shall include also a section entitled “about Us” to serve as a guide for the users. This section shall emphasize and explain the different sections of the website and how to manipulate the different services made available for them.

- Users shall specify the date of the reservation along with the time of this later and the number of people attending.

- Users shall also advance an amount of money to be decided with the business partners as to ensure the attendance of these later. To do so, users shall give their credit card credentials and confirm.

- The web platform should enable users to follow up with the events happening in the city through a calendar they can review and customize.

- The web application shall provide customers with a reply or a confirmation to their reservations through a text message immediately.

- ‘Business partners’ shall be able to specify the capacity still available for reservation through a form he should fill using his proper interface.

- ‘Business partners’ should be able to manage their reservations through a news feed where they can view all the notifications pending. The confirmation shall be done automatically taking into consideration the capacity that is still available.

- ‘Business partners’ shall be able to post in their private interface coupons or deals to be offered to the public in the appropriate section of the web platform.

- The web platform shall use the google map geo localization feature to indicate the location of the businesses of interest.

Following these functional requirements, we understand that the following set of functions or building blocks should be featured in the system:
1. Function manage user’s profile:
   1.1. Sub functions Add, modify and delete user personal information
   1.2. Sub functions Add, modify and delete user preferences
   1.3. Sub functions Add, modify and delete user reviews
   1.4. Sub functions add, delete a reservation

2. Function manage special offers:
   2.1. Sub function add an item to this section
   2.2. Sub function modify an item in this section
   2.3. Sub function delete an item in this section
   2.4. Sub function browse by category

3. Function manage business partners’ dedicated web pages:
   3.1. Sub function add a business partner
   3.2. Sub function modify an item in this section
   3.3. Sub function delete an item in this section
   3.4. Sub function browse by category

4. Function manage calendar:
   4.1. Sub function add an event to the calendar
   4.2. Sub function modify an event in the calendar
   4.3. Sub function delete an event in the calendar
   4.4. Sub function view an event in the calendar

5. Function manage articles:
   5.1. Sub function add a business article
   5.2. Sub function modify a business article
   5.3. Sub function delete a business article
   5.4. Sub function browse by category

6. Function manage reservations:
   6.1. Sub function make a reservation
   6.2. Sub function cancel a reservation
7. Function manage reservation feed:
   7.1. Sub function confirm a reservation
   7.2. Sub function reply to a reservation
   7.3. Sub function browse by date
   7.4. Sub function view history

8. Function manage comments/reviews:
   8.1. Sub function post a comment/review
   8.2. Sub function modify a comment/review
   8.3. Sub function delete a comment/review
   8.4. Sub function reply to a comment/review


The following conceptual architecture shows the hierarchy of the processes in one picture, without considering the two other components of the system, which are the users and the data to be used. The given system is composed of 8 processes that were the result of the requirements engineering process and which are included in the previously provided stable version of the USRD. I used a tree-like representation to illustrate this hierarchy.
Rosh & About Bowling System

Manage User's Profile
- Add, modify, and delete user personal information
- Add, modify, and delete user preferences
- Add, modify, and delete user reviews
- Add, delete a reservation

Manage Special Offers
- Add a special offer
- Modify a special offer
- Delete a special offer
- Browse by category

Manage Business Partners' Dedicated Web Pages
- Add a business partner
- Modify a business partner
- Delete a business partner
- Browse by category

Manage Calendar
- Add an event to the calendar
- Modify an event in the calendar
- Delete an event in the calendar
- Browse by category

Manage Suggestion Articles
- Add a Suggestion article
- Modify a Suggestion article
- Delete a Suggestion article
- Browse by category

Manage Reservations
- Make a reservation
- Cancel a reservation

Manage Reservations Feed
- Confirm a reservation
- Reply to a reservation
- Browse by date
- View history

Manage Community/Veues
- Post a comment/review
- Edit a comment/review
- Delete a comment/review
- Reply to a comment/review
VII. Non-Functional requirements :

![Non-Functional requirements diagram]

**Figure 2** : Non-functional requirements architecture.

7.1. Product requirements

- The web application shall be efficient, reliable and most all perform all its operations in a correct and relatively fast manner.
- User friendliness of the interface shall be taken into consideration.
- The application in question shall be developed in a responsive design that shall be compatible with every browser on every screen size.
- The user interface shall be implemented in HTML, styled with CSS, and hides all the backdoor functionalities that PHP, Ajax, and MySQL offer.

P.S: The development will be made in a local scope before eventually going live after the testing phase

7.2. Organizational requirements

- The project shall be completed within a period of three months.
- Data shall be stored and retrieved from a local database.
- The project shall be delivered on time as a Capstone project within an academic scope.

7.3. **External requirements**
- The website shall disclose personal information in the form of credit card credentials.
- The website shall not constitute any harm to its users.
  
P.S: Please refer to the STEEPLE ANALYSIS for legislative and ethical requirements.

VI. **Development Process:**

The model I chose to deploy and I see most efficient is the classic life cycle model or waterfall model. By choosing this approach I will guarantee a well-designed system that meets all the requirements agreed upon in the first stage.

6. **Development Methodology:**

![Figure 3: Classic waterfall model](image)

6.1. **Feasability study:**

From a pragmatic point of view and at this stage of the project, I should make sure that the system to be deployed is doable and will be in the real world. “Kech’n’about” targets mainly Moroccan users as there is no comparable application in Morocco that
offers its functions. There are informative websites that might offer deals but not a web service that offers the possibility to get reservations in different places. A concrete examples of these would be “http://www.Made-in-marrakech.com”

The next step after requirements specification and a discussion of the project’s feasibility is the analysis and design.

6.2. Analysis:

According to the Merriam-Webster dictionary, systems analysis is "the process of studying a procedure or business in order to identify its goals and purposes and create systems and procedures that will achieve them in an efficient way". Therefore, during this step, breaking down the system into different components is essential to analyze the scope of the project, its goals, and have a clear idea about what needs to be created. Users should also be heavily involved so that clear and ready-to-use requirements can be defined

6.3. Design:

This step is crucial as it is the ultimate basis of the project as a whole where the overall structure is to be defined. Low-level (How modules inside the website should relate to each other), interface (How the website should look like) and data (What data will be needed) designs should be addressed, which will facilitate the implementation of the system
6.4. UML Diagrams

6.3.1. Use case Diagram:

A Use case diagram refers to what the system does from the perspective of an external viewer. The stress here is on what the system does rather than how it does it. In brief, a use case is a summary of situations for a particular job.

![Use Case Diagram](image)

**Figure 4: Use Case Diagram**
Flow of events of some use cases:

- **Sign up:**

<table>
<thead>
<tr>
<th>Use Case Name</th>
<th>Sign up 01</th>
</tr>
</thead>
<tbody>
<tr>
<td>actor</td>
<td>Any user</td>
</tr>
<tr>
<td>description</td>
<td>Any visitor of the website can sign up to become a registered user.</td>
</tr>
<tr>
<td>pre</td>
<td>User is new to website. User has chosen to follow the link for signing up or the sign up window has popped up</td>
</tr>
</tbody>
</table>
| Main flow     | Step 1. User presses the “Sign up” button.  
|               | Step 2. User fills in all the fields.  
|               | Step 3. System makes sure the fields are filled in appropriately.  
|               | Step 4. System stores the user’s information in the database. |
| Alternative course | Step 1. User presses the “Sign up” button.  
|                  | Step 2. User fills in all the fields.  
|                  | Step 3. System makes sure the fields are filled in appropriately.  
|                  | Step 4. System stores the user’s information in the database. |
| post          | System creates an account for the user. User can now access the features according to his status. |

- **Post a comment:**

<table>
<thead>
<tr>
<th>Use Case Name</th>
<th>Post a comment 05</th>
</tr>
</thead>
<tbody>
<tr>
<td>actor</td>
<td>Registered user</td>
</tr>
<tr>
<td>description</td>
<td>If the user is registered and authenticated. Then he or she can post a comment about a specific place visited or reply to an existing one. This comment will be viewed by other users.</td>
</tr>
<tr>
<td>pre</td>
<td>User has logged in the system. User has opened the webpage dedicated to a specific business place</td>
</tr>
</tbody>
</table>
| Main flow | Step 1. User Clicks on a business’s web page of interest  
|           | Step 2. User Writes the comment.  
|           | Step 3. System stores the user’s comment in the database. |
| Alternative course | Step 1. User presses the “reply” button.  
|           | Step 2. User Writes the comment.  
|           | Step 3. System stores the user’s information in the database. |
| post | System posts a comment by the user in the web page.  
|       | Other users may view and reply to the comment. |

- **make a reservation:**

<table>
<thead>
<tr>
<th>Use Case Name</th>
<th>Post a comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>10</td>
</tr>
<tr>
<td>actor</td>
<td>Registered user</td>
</tr>
<tr>
<td>description</td>
<td>If the user is registered and authenticated. Then he or she can make a reservation in the business place of her choice.</td>
</tr>
</tbody>
</table>
| pre           | User has logged in the system.  
|               | User has opened the webpage dedicated to a specific business place |
| Main flow     | Step 1. User Clicks on a business’s web page of interest  
|               | Step 2. User clicks on the “book now” button  
|               | Step 3. User fill a form with the date, the time of the venue and the number of people interested.  
|               | Step 4. System stores the user’s information in the database.  
|               | System sends a notification to the administrator and the business owner to respond. |
| Alternative course | System sends a notification to the administrator and the business owner to respond.  
| post          | System prompts the user with a message confirming the reception of the request and the delay of the response. |

- **Buy a coupon/deal:**

<table>
<thead>
<tr>
<th>Use Case Name</th>
<th>Post a comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>11</td>
</tr>
<tr>
<td>actor</td>
<td>Web user</td>
</tr>
</tbody>
</table>
The user can benefit from the different coupons deals made available for them.

**pre**
User has logged in the system.

**Main flow**
- **Step 1.** User clicks and is directed to the special offers section
- **Step 2.** He browses the coupons/deals by category
- **Step 3.** User chooses the coupon/deal of interest.
- **Step 4.** User clicks on the “buy” button.

**Alternative course**

**post**
A serial number is generated referring to that deal or coupon. The user shall use that number to benefit from the deal.

6.4.2. **Class Diagram:**

A class diagram provides a general idea of the system by presenting its classes and the relationships between them.
6.4.3. **Activity Diagram:**

An Activity diagram is another important diagram in UML to describe dynamic aspects of the system.

An Activity diagram is basically a flow chart to represent the flow from one activity to another one. The activity can be described as an operation of the system.

So the control flow is drawn from one operation to another. This flow can be sequential, branched or concurrent. Activity diagrams deals with all type of flow control by using
different elements. The activity diagram below describes the work flow to be followed in order to book a certain room of a hotel under the city guide section.

![Activity Diagram]

6.5. Data Dictionary:

The following is the data dictionary used for the system, which is represented in the form of the most important tables in the databases retrieved using PHPMyAdmin:

The table below describes the fields appropriate for login a business owner into his proper interface. The salt attribute is used here to be mixed with the password given by the administrator so as to increase the encryption system.

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Type</th>
<th>Collation</th>
<th>Attributes</th>
<th>Null</th>
<th>Default</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>member_id</td>
<td>int(10)</td>
<td>UNSIGNED</td>
<td>No</td>
<td>None</td>
<td>None</td>
<td>AUTO_INCREMENT</td>
</tr>
<tr>
<td>2</td>
<td>username</td>
<td>varchar(20)</td>
<td></td>
<td>No</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>email</td>
<td>varchar(100)</td>
<td></td>
<td>No</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>salt</td>
<td>int(10)</td>
<td>UNSIGNED</td>
<td>No</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>password</td>
<td>varchar(40)</td>
<td></td>
<td>No</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6: Login table.
<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Type</th>
<th>Attributes</th>
<th>Null</th>
<th>Default</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>prestID</td>
<td>int(10)</td>
<td></td>
<td>No</td>
<td>None</td>
<td>AUTO_INCREMENT</td>
</tr>
<tr>
<td>2</td>
<td>civil</td>
<td>varchar(5)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>prenom</td>
<td>varchar(100)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>nom</td>
<td>varchar(100)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>societe</td>
<td>varchar(300)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>categorie</td>
<td>varchar(100)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>fixe</td>
<td>varchar(20)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>mobile</td>
<td>varchar(20)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>adresse</td>
<td>varchar(300)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>cppostal</td>
<td>varchar(10)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>ville</td>
<td>varchar(50)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>email</td>
<td>varchar(200)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 7:** Business Owner table.

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Type</th>
<th>Attributes</th>
<th>Null</th>
<th>Default</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>resalID</td>
<td>int(11)</td>
<td></td>
<td>No</td>
<td>None</td>
<td>AUTO_INCREMENT</td>
</tr>
<tr>
<td>2</td>
<td>PrestID</td>
<td>int(11)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>date</td>
<td>date</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>time</td>
<td>time</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>numpeople</td>
<td>smallint(6)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>userID</td>
<td>int(11)</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>message</td>
<td>text</td>
<td></td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 8:** Reservation table.
VII. Implementation:

7.1. Technology enablers

There are different frameworks one can choose from when trying to develop a web solution or system. There exist commercial packages made available for web developers maintained by these later to accommodate to the changing development environment. Open source solutions are very promising and offer the exact same services with the advantage of gaining from the contribution of those same web users. Eventually, one can also build his website using CMS (Content Management System) with free ready-to-use templates made available, but the approach I opted for is to develop the website using a local server along with the new bootstrap framework. This deployment method will be of great help when it comes to testing the different functionalities of the system.

Being currently a user of the Windows operating system, I opted for one of the WAMP
stacks that are available free for use.

WAMP basically stands for "Windows, Apache, MySQL, and PHP." It is a variation of LAMP for Windows systems and is often installed as a software bundle (Apache, MySQL, and PHP). WAMP is often used for web development and internal testing, but may also be used to serve live websites.

The most important part of the WAMP package is Apache (or "Apache HTTP Server") which is used to run the web server within Windows. By running a local Apache web server on a Windows machine, a web developer can test webpages in a web browser without publishing them live on the Internet.

WAMP also includes MySQL and PHP, which are two of the most common technologies used for creating dynamic websites. MySQL is a high-speed database, while PHP is a scripting language that can be used to access data from the database. By installing these two components locally, a developer can build and test a dynamic website before publishing it to a public web server.

While Apache, MySQL, and PHP are open source components that can be installed individually, they are usually installed together. One popular package is called "XAMPP," which provides a user-friendly way to install and configure the "AMP" components on Windows. [6]

Therefore, for the sake of this capstone project, the software bundle I will be extensively using is as follows:

**WAMP stack:**
- Windows is the Operating System
- Apache is the HTTP server (web server)
- MySQL is the Relational Database Management System (RDBMS)
- PHP is the scripting language

Other Programming languages I am using are:

- HTML5 (Hyper Text Markup Language) as a markup language for web pages creation
- CSS (Cascading Style Sheets) to format and style the web pages
- JavaScript is the dynamic scripting language
• Ajax (Asynchronous JavaScript+XML) is a group of technologies mainly used in my project to exchange data asynchronously between browser and server to avoid full page reloads.

• *Explaining different roles that PHP, MySQL, HTML, CSS, and JavaScript play in web development:*

![Figure 10: Relationships between User, browser, and server](image)

**Figure 10**: Relationships between User, browser, and server

➢ **XAMPP as a Platform for web development:**

I chose to download and install XAMPP which offers the WAMP solutions described above. It has a very nicely shaped and friendly graphical user interface with a panel offering numerous functions that can be accessed directly from the browser, such the PHPmyAdmin.
Bootstrap as the framework used to develop the user interface:

Bootstrap is a front-end framework for building responsive websites. Whether it is application frameworks, blogs, or other CMS applications, Bootstrap can be a good fit, as it can be as vanilla as you like. Its combination of HTML, CSS, and JavaScript make it easy to build robust sites without adding a lot of code. With a default grid system, layouts come together with ease, and the styling of buttons, navbars, and tables make basic markup look great from the get-go. A dozen or so JavaScript plugins catapult you into adding interactive elements to your site. [7]

Bootstrap can be downloaded for free and comes with various JS and CSS files that can be pasted with one’s code. Classes defined in such files can be called directly and used.
The following snapshot emphasizes the files that come with the bootstrap framework:

Below is a snapshot of a basic template using Bootstrap that can be modified and edited as one’s wishes:

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="utf-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>Bootstrap 101 Template</title>

    <!-- Bootstrap -->
    <link href="css/bootstrap.min.css" rel="stylesheet">

    <!-- HTML5 shim and Respond.js for IE8 support of HTML5 elements and media queries -->
    <!-- WARNING: Respond.js doesn't work if you view the page via file:// -->
    <!--[if lt IE 9]>
    <script src="https://oss.maxcdn.com/html5shiv/3.7.2/html5shiv.min.js"></script>
    <script src="https://oss.maxcdn.com/respond/1.4.2/respond.min.js"></script>
    <![endif]-->
</head>

<body>
<h1>Hello, world!</h1>

<!-- jQuery (necessary for Bootstrap's JavaScript plugins) -->
<script src="https://ajax.googleapis.com/ajax/libs/jquery/1.11.1/jquery.min.js"></script>
<!-- Include all compiled plugins (below), or include individual files as needed -->
<script src="js/bootstrap.min.js"></script>
</body>
</html>
```
The following snapshots emphasize the code for different bootstrap components used for this capstone project:

- A basic template for the carousel component used for the section of articles:

```html
<div id="carousel-example-generic" class="carousel slide" data-ride="carousel">
  <!-- Indicators -->
  <ol class="carousel-indicators">
    <li data-target="#carousel-example-generic" data-slide-to="0" class="active"></li>
    <li data-target="#carousel-example-generic" data-slide-to="1"></li>
    <li data-target="#carousel-example-generic" data-slide-to="2"></li>
  </ol>
  <!-- Wrapper for slides -->
  <div class="carousel-inner" role="listbox">
    <div class="item active">
      <img src="..." alt="...">
      <div class="carousel-caption">
        ...
      </div>
    </div>
    <div class="item">
      <img src="..." alt="...">
      <div class="carousel-caption">
        ...
      </div>
    </div>
    <div class="item">
      <img src="..." alt="...">
      <div class="carousel-caption">
        ...
      </div>
    </div>
  </div>
  <!-- Controls -->
  <a class="left carousel-control" href="#carousel-example-generic" role="button" data-slide="prev">
    <span class="glyphicon glyphicon-chevron-left" aria-hidden="true">Previous</span>
  </a>
  <a class="right carousel-control" href="#carousel-example-generic" role="button" data-slide="next">
    <span class="glyphicon glyphicon-chevron-right" aria-hidden="true">Next</span>
  </a>
</div>
```

- A basic template for the modal component used to present either an establishment in Marrakech or a special offer:
The Google Maps Web Services are a collection of HTTP interfaces to Google services providing geographic data for my map application.

The Google Maps Geolocation API which was extensively used throughout this project to give the location of the businesses returns a location and accuracy radius based on information about cell towers and WiFi nodes that the mobile client can detect.
Authentication process using Facebook:

The fact that “Kech’n’about” will have profiles for its users, the idea of allowing users to register using their Facebook accounts is meant to facilitate the information gathering from the users.

With Facebook Login made available for developers, I aim to provide our users with the possibility of choosing between two Login options:

- Either use Facebook Login :
  
  We will make use of the Facebook SDK which provides a feature called “User Settings Fragment” which is hosted on the website and displays the actual Facebook Login button.

- Or, our own Sign Up/Login mechanism :
  
  User can go through our Registration forms that need to be filled in order to submit the registration or login depending on who is trying to access the website.

Using this technology offered by Facebook, we can now make use of the “Shared interests” feature of the website to gather information automatically from users’ Facebook accounts without having them fill everything manually on the “Kech’n’about” web interface.

a. Database/Tables creation using MySQL:

```sql
// business Owner Table Definition
$rbusiness_owner_table_definition = prest_TABLE.
{
    prestID INT UNSIGNED AUTO_INCREMENT
    PRIMARY KEY,
    price INT NOT NULL,
    civil VARCHAR(5) NOT NULL,
    prenom VARCHAR(100) NOT NULL,
    nom VARCHAR(100) NOT NULL,
    societe VARCHAR(300) NOT NULL,
    categorie VARCHAR(100),
    fixe VARCHAR(20) NOT NULL,
    mobile VARCHAR(20) NOT NULL,
    address VARCHAR(300) NOT NULL,
    cd_postal VARCHAR(10)
}
```
NOT NULL, ville
VARCHAR(50) NOT NULL,
email VARCHAR(200);

// Members Table Definition
INSERT INTO
`members`(
 `member_id`,
 `username`,
 `email`,
 `salt`,
 `password`
)
VALUES(
 [ VALUE -1 ],
 [ VALUE -2 ],
 [ VALUE -3 ],
 [ VALUE -4 ],
 [ VALUE -5 ]
)

// Reservations Table Definition
INSERT INTO
`reservation`(
 `resaID`,
 `PrestID`,
 `date`,
 `time`,
 `numpeople`,
 `userID`,
 `message`
)
VALUES(
 [ VALUE -1 ],
 [ VALUE -2 ],
 [ VALUE -3 ],
 [ VALUE -4 ],
 [ VALUE -5 ],
 [ VALUE -6 ]
)
b. **Establishing the database connexion:**

![Screenshot of PHP code](image)

Figure 12: screenshot of the php code referring to the database connection

---

c. **The authentication system using php:**

```php
<?php

// start - Authentication
if (array_key_exists('send', $_POST)){
    $erreur = false;
    session_start();

    include($_SERVER['DOCUMENT_ROOT']. '/capstone/admin/includes/corefuncs.php');
    include($_SERVER['DOCUMENT_ROOT']. '/capstone/admin/includes/conn_mysqli.inc.php');
    if (function_exists('nukeMagicQuotes')){
        nukeMagicQuotes();
    }

    $username = trim($_POST['username']);
    $password = trim($_POST['password']);
    $conn = dbconnect('admin');

    $sql = "SELECT salt, password FROM members WHERE username = ";
    $stmt = $conn->stmt_init();
    if ($stmt->prepare($sql)){
        $stmt->bind_param("ss", $username, $password); // $password is not safe
        $stmt->bind_result($salt, $md5p); // $password is not safe
        $stmt->execute();
        $stmt->fetch();
    }
    if(sha1($password.$salt) == $md5p){
        $_SESSION['authentifie'] = 'totobiola';
        $_SESSION['name'] = $username;
    } else {
        $_SESSION = array();
        session_destroy();
        $erreur = 'Please enter a correct username and password. <br />Note that both fields are case-sensitive.';
    }
    if(isset($_SESSION['authentifie'])){ // Set that the user is authenticated...
        $_SESSION['start'] = time();
        header("location: ../files/admin.html");
        exit;
    }

    // End ----- Authentication
    ?>
```
d. **Modularization of code:**

I have opted to write the code of the application in a modularized way that will enable me to debug and find errors easily. By doing this, the code is kept in separate files and can be called when needed. This type of implementation is very efficient, clean, and easily maintainable.

We can see below how different files are separated inside different folders. The main capstone folder contains an admin folder, a site folder that regroups the different files related to the website interface.
The last screenshot lists the different php classes.

VIII. Screenshots of the website’s different features:

- “Kech’n about” main four sections:

The articles section that suggest new ideas or plans.
The special offers section:

The city guide section:

The two html columns list in order: the different hotels and riads available for the users, the different restaurants and nightlife attractions.
The other html columns list in order: the different leisure and well-being attractions of Marrakech, the different tourism attractions along with the travel agencies and rental agencies.

The contact Us section:
The admin and business owners login page:

![Login page](image)

The administrator can register new business owners:

![Registration form](image)
The administrator can assign login credentials to these business owners. It is important to mention that the website does not allow these later to sign up for the verification and validation process that should run behind before registering new business owners.

![Registration form]

The administrator can view the list of the business owners registered along their personal information:

![List of business owners]

The category field as shown above will serve us to offer a different reservation form for each business.

Here is an example of the modal proposed to describe a certain attraction, and the book button that will direct him to the reservation modal:
Here is an example of a reservation modal that prompt the user to choose a date for the reservation, a time stamp and the number of people attending:
IX. Future Work:

The least that could be said about my capstone project is that it is definitely not complete yet. To be able to deploy it to the professional market and have functioning as desired, major modifications should be brought to light.

The most significant perhaps should be, as my supervisor Dr. Driss Kettani suggested, that I use existing information managerial systems already deployed beforehand on the businesses sites and capture the current status of each so that I can use it to automate the reservation process. I used for the scope of this capstone project an interface for these businesses so that they can fill a form that tells me more about their current status. I can still use this interface for businesses that do not have such existing systems, but the added value from using distributed tiers is significant.

Another important aspect that should be made available for our web users is including other big renowned cities in Morocco so as that it offers these same services for a global Moroccan market.

The social aspect of the website should also be enhanced as to bring an added value and make its manipulation even more enjoyable.

Last but not least, other categories that fall under the city guide section should also be included to be able to capture all the attractions available in each city.
X. Conclusion:

All in all, the amount of experience that I have gained while working on this capstone project cannot even be measured. After completing this project, I realize that web development is something that really interests me, and I hope to pursue it more in the future. All those tutorials in CSS, JavaScript, HTML, and Ajax, have really proven to be useful throughout this project. The things learned both in class and on my own were one of the reasons for the possible completion of this capstone project and my undergraduate degree.

At the beginning of the semester, the project seemed to be too broad and did not seem to be a clear project that could be completed successfully. As I worked, each part and the steps that I needed to take became clearer. My confidence in my work grew stronger as I progressed. I am not saying that there were not any difficulties, but rather it is just the opposite in this case. I encountered many problems along the way. Using open source frameworks is something that I constantly struggled with. Aligning and making the codes retracted from GitHub and Bootstrap with my code proved to be quite challenging.

Looking back at the work that was completed, it is clear that the struggle was immense, but it was well worth it. The amount of knowledge and experience added will definitely prove to be very useful in the future, especially now that I know that I want to pursue a similar path in my career.
References

Appendix A:

SOUALHIA Nizar
CSC
Amazigh e-learning platform
Dr. Kettani D.
Fall 2015

The main purpose of this project is to develop a web platform that promote my hometown Marrakesh and allow for reservations in different places and tourist attractions. It should be able to give an idea to the web-users about the perfect plan for an evening or a dinner and allow them to get a reservation. The platform should also be a mean for people to share their experiences in these different places and rate them for other people to base their decisions on. These web users will then receive after making a reservation somewhere a notification regarding the availability of those places. My task will consist of developing a web platform to promote Marrakech and offer subsequent deals, manage their reservations and get back to them with a confirmation, and finally develop a standalone application to be installed at our partners’ locations so as to get the relevant data to be manipulated. Therefore, a minimum subset of the objectives, the achievement of which will be regarded as acceptable would be a well-integrated system that follows the description above.

An efficient way to approach the development of this project is by breaking it into small manageable tasks that will add up to constitute our system’s lifecycle: Starting by a feasibility study that will allow us to evaluate the potential of the application, then moving on to the elicitation part that will result in a software requirements specification to be analyzed. Our next phases will consist of the design that will emphasize the technology to be used in the implementation of the application. The last step is integrating and verifying that the system actually fulfils the requirements it was designed for and meets quality expectations.

Timeline of the project:
-September 10th: First meeting with supervisor and discussion of the project idea.
-September 11th: Specifications of the capstone project.
-September 18th: Feasibility Study and Analysis.
-September 18th – October 19th: Weekly diaries and Work on the Requirements and design.
-October 19th: submission of the interim Report.
-October 19th – November 23th: Weekly diaries and Implementation phase
-November 23th: Final Report due

Social and ethical aspects among various others are omnipresent in this project as the main idea behind this web platform is to promote Marrakech and help businesses flourish. People would also have the opportunity to share their experiences and get together in renowned places.