**Chapter 1 planning**

**Introduction:**

In the beginning, let’s discuss the issues that we all face in the Metro stations every day.

First of all, the crowd and how it waste a lot of our time and effort to get to our destinations. It’s hard you know to stand in the morning every day in lines to get our tickets which lead to lateness. Second, the memberships which take time to make and renew it although it’s made for offering the best services people should have.

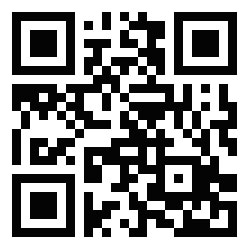
So after discovering all of these problems and collecting Info plus the surveys. We decided to make an app that offers the best service ever a man could get by using Metro for transportation.

The app offers the ability of booking the ticket needed for your trip without the need of standing in queues to pay for the tickets or for the membership cards beside you can pay online to save your time and effort.

To make it more easy, you have two options when you use our app:

Weather you can use the latest technology which is the QR code technology.

QR code is a type of a barcode that contains a matrix of dots and it can be scanned using your smartphone with put-in camera and in metro it will be scanned by the machines. Once scanned, software on the device converts the dots within the code into numbers or strings of characters



Or if you don’t have a smartphone this won’t make any problem for using our app. You can have a card that you only pay for it once in the beginning and using it instead of buying tickets every time you use the metro.

Furthermore our app benefits haven’t ended yet, this app contributes with both ministers transportation and tourism as it gives a good recommendation for ancient and touristic places that are near to your destination with reasonable prices

Finally the role of this app is to offer the best service to metro consumers and to end all of the problems that is discussed. In addition make our country more advanced.

**Problems:**

How many times have you missed your trip because of the crowding in the Metro stations and the huge number of queues that you have to wait for in order to go to your work or to get your children from schools.

In Egypt people suffer to get their needed tickets or to pay for their membership as they waste alot of time to get the service they need, while old men do alot of effort that they can't handle and after all they don't get the service in the way they deserve.

So why won't we take a look and ponder these problems and be more advanced. Our app offers you the best services you wish for, it vanishes all the problems you face in the morning as you will get your ticket online in only few seconds without the need of standing in queues and don't worry we didn't forget online payment. Plus it gives you alot of offers that you must not miss.

**How to solve the problem:**

We aim with our web app to solve many problems that we face daily, and also give creative and simple ways of solving these problems and dealing with them. Our web app serves both Ministries of Transportation and Tourism and connects between them through our app to help the users discover the unknown ancient and touristic places inside Cairo using the metro as their transportation. One other big problem is the queues we face every day in every metro station and dealing with the traffic, so we try with our app to cut all these problems by saving our time in standing in these queues and lines, and also save a lot of money for the government that is used in making these card tickets.

**Project scope:**

|  |  |  |
| --- | --- | --- |
| Project name |  | Easy metro |
| Author / innovator |  | Verina Hany |
| Group |  | Merna Hesham , Marina Mohsen, David Maged , Nader Gamal |
| Date started |  | 1/3/2019 |
| Background to the proposed work |  | Web app connect both ministries of transportation and tourism. |
| Objectives |  | Buy tickets online, Create /Update membership card, offers on tickets of touristic places, sponsors offers. |
| Scope |  | Do:   1. Buy tickets online. 2. Create/update membership card online. 3. Send QR scanner or using ID CARD. 4. Recommend for you touristic places with offers. 5. Send offers and advertisements for project sponsors. 6. Guide your track from station to touristic places. 7. Pay online by visa or cash fawery by ID CARD   Don’t:   1. Don’t Guide your track for stations. 2. Don’t tell you the nearest station. |
| Deliverables |  | -Faster way to get a ticket.  -Faster way to create or update membership card.  - Save user time.  -less of crowd. |
| Business benefits |  | Profit for both ministries of tourism and transportation |
| Constraints / risks |  | Deadline, budget, hacking. |
| Stakeholders |  | Project manager, sponsors, team members |

**Objectives:**

* The user use the web app to buy tickets instead of buying it from the metro stations.
* The user can create a membership card which can be charged with any amount of money to be used at any time, and the membership card gives the user offers and discounts.
* The membership must be updated every now and then or it will be cancelled.
* The web app and membership cards will support internal tourism by notifying people with the nearest places they can visit from their stations, and offering them discounts for this places.
* The user can enter his visa number to pay online.

**Software and Hardware requirements:**

* *Software:* windows 10.
* *Hardware:* Windows 10 technical preview has these requirements:
* Processor: 1 gigahertz (GHz) or faster
* RAM: 1 gigabyte (GB) (32-bit) or 2 GB (64-bit)
* Free hard disk space: 16 GB
* Graphics card: Microsoft DirectX 9 graphics device with WDDM driver
* A Microsoft account and Internet access

**Front end languages:**

**Benefits of html5:**

* Using HTML5 helps to eliminate most <div> tags and replace them with semantic elements. Designers can now use cleaner and neater code.
* Make a more detailed understanding of the structure of a page with the help of HTML5.
* With its new features and standards, HTML5 makes it easier to create front-end application such as drag and drop tools, wikis, discussion boards, and other useful elements.
* Share where you are in the world with the help of Geolocation. You can do this using your IP address, wireless network connection, the cell tower your phone is talking to or dedicated GPS hardware to calculate the latitude and longitude from information sent by satellites. With the new HTML5 Geolocation, APIs make location directly available to any HTML5 compatible browser based application.
* HTML5 provides a smarter solution to specify the files that the browser should cache. The pages can be loaded correctly even when offline.
* In place of reduction in cookie size, HTML5 allows you to use session Storage and local Storage. Store the structured data temporarily, not on a permanent basis.
* The standardized code of HTML5 elements increases the semantic value of the web page. With the specific tags for the headers, nav, footers, etc, the designers know the meaning and purpose in the whole format.
* The major benefits of HTML5 include elegant forms, user interface enhancements, reduced need for JavaScript, and forms validation native to HTML.
* Look for greater consistency by adopting HTML5 to code a web page on one site compared to another. You can easily understand how a web page is structured and make it easier for designers.
* HTML5 has many features including <video>, <audio>, charts, high-quality drawings, animations, and the integration of SVG content. It is easy to integrate multimedia and graphical content to the web without using flash and third party plugging. The semantic value of the document can be enriched by new elements like <section>, <article>, <header>, <nav>, and more.

**Benefits of Css:**

* Easier to maintain and update​
* ​Greater consistency in design​
* More formatting options​
* Lightweight code
* Faster download times​
* Search engine optimization benefits
* Ease of presenting different styles to different viewers​
* Greater accessibility

**Tool:**

\_ Dreamweaver:

Dreamweaver is website creation software by Adobe system that’s used to create websites with HTML, CSS and others Web programming languages. Dreamweaver also offers pre-made elements that can be dragged and dropped to assemble a fully functional website using a what-you-see-is-what-you get interface. Dreamweaver also includes features that make creating mobile compatible websites faster, such as a fluid grid, web font’s support and CSS3 transition support.

**Benefits of JavaScript:**

* *Speed.* Client-side JavaScript is very fast because it can be run immediately within the client-side browser. Unless outside resources are required, JavaScript is unhindered by network calls to a backend server. It also has no need to be compiled on the client side which gives it certain speed advantages (granted, adding some risk dependent on that quality of the code developed).
* *Simplicity*. JavaScript is relatively simple to learn and implement.​
* *Popularity*. JavaScript is used everywhere in the web. The resources to learn JavaScript are numerous. StackOverflow and GitHub have many projects that are using Javascript and the language as a whole has gained a lot of traction in the industry in recent years especially.
* *Interoperability*. JavaScript plays nicely with other languages and can be used in a huge variety of applications. Unlike PHP or SSI scripts, JavaScript can be inserted into any web page regardless of the file extension. JavaScript can also be used inside scripts written in other languages such as Perl and PHP.
* *Server Load*. Being client-side reduces the demand on the website server.​
* *Rich interfaces*. Drag and drop components or slider may give a rich interface to your website.
* *Extended Functionality*. Third party add-ons like Greasemonkey enable JavaScript developers to write snippets of JavaScript which can execute on desired web pages to extend its functionality.
* *Versatility*. Nowadays, there are many ways to use JavaScript through Node.js servers. If you were to bootstrap node.js with express, use a document database like mongodb, and use JavaScript on the front-end for clients, it is possible to develop an entire JavaScript app from front to back using only JavaScript.
* *Updates*. Since the advent of EcmaScript 5 (the scripting specification that Javascript relies on), Ecma International has dedicated to updating JavaScript annually. So far, we have received browser support for ES6 in 2017 and look forward to ES7 being supported in future months.

**Benefits of jQuery:**

* *Search Engine Optimized* – While search engines are getting better at being able to read content within some Flash, everything within jQuery is setup as text. This means it is completely readable to all the search engines, exposing all your keyword rich content.
* *Save Time* – Five lines of jQuery are equivalent to 25 lines of conventional JavaScript code. This means smaller files and faster loading web pages.
* *Plug-ins* – There are an abundance of plug-ins on the web that make creating special effects simple and fast for web developers.
* *Help?* – With an abundance of plug-ins comes with an abundance of help. There is a large helpful support community on the web to help you quickly remedy any bug issues.
* *That was easy!* – JQuery has easy implementation for web developers in comparison to other applications.
* *Cross​ Browser Friendly* – jQuery is currently the most popular JavaScript library and works in all browsers.
* *FREE!* – free, open source software.
* *Mobile Devices* – jQuery is supported by any mobile device whose web browser supports JavaScript. A lot of mobile devices like iPads and iPhones don’t run Flash at all.
* Web developers use jQuery to make web pages more exciting, interactive, cleaner, and more user friendly.

**Benefits of Bootstrap:**

* *Speed of Development*: The speed of development is one of its major advantages. If you want to develop an application or a website promptly, it is imperative to consider using Bootstrap. It helps to save your coding effort by offering less CSS functionality and pre-built blocks of code rather than structuring code from the scratch. Ready-made themes of Bootstrap will help achieve your needs through a faster route.
* *Responsiveness:* According to CISCO’s predictions, global mobile data traffic will increase approximately 11-fold between 2013 and 2018. These statistics points to the need for a responsive website in varied kinds of mobile devices.
* Bootstrap is equipped with responsive layout and 12-column grid system that help dynamically adjust the website to a suitable screen resolution. The ‘responsive utility classes’ feature of Bootstrap enables you to hide / show a certain section of content for a particular screen size.
* ​*Consistency:* Consistency was the fundamental principle behind the introduction of Bootstrap. It ensures the ultimate consistency regardless of designer/developer, who is working on it. Moreover, the results work uniformly across various browsers and the output remains same.
* *Customizable:* Bootstrap facilitates abundant customization and helps developers in designing tailor made websites, according to their specifications. It has the facility to select any feature that is actually needed to create a customized website. With this feature, one can get rid of what they do not require.
* *Support***:** Bootstrap helps to fix issues promptly with an immense support community. Bootstrap also releases continual updates to fix any new issues. Currently, it is being developed, hosted and maintained by GitHub with over 9000 commits and 500 contributors.
* Bootstrap is an awesome framework with rich features. It is the latest in innovation for responsive development and supports designing of websites and apps faster, easier and better.

**Back end languages:**

**Benefits of PHP:**

* PHP is Open Source. Open Source means you never need to rely on the manufacturer to release the next version if something doesn’t work or pay for expensive upgrades.
* PHP is extendible.
* Large amount of databases are supported.
* PHP is platform independent. It will run on most of the platforms.​
* Compatible with servers like IIS and APACHE.
* Low development and maintenance cost with very high performance and reliability

**Tools:**

\_Apache Server:

Apache is a freely available Web server that is distributed under an "open source" license, and it is the most widely used web server software. Developed and maintained by Apache software Foundation, Apache is an open source software available for free. It runs PHP codes and 67% of all webservers in the world. It is fast, reliable and secure. It can be highly customized to meet the needs of many different environments by using extensions and modules. Most WordPress hosting providers use Apache as their web server software.

**Benefits of MySQL:**

* ​*Data Security:* MySQL is globally renowned for being the most secure and reliable database management system used in popular web applications like WordPress, Drupal, Joomla, Facebook and Twitter. The data security and support for transactional processing that accompany the recent version of MySQL, can greatly benefit any business especially if it is an eCommerce business that involves frequent money transfers
* ​*On-Demand Scalability:* MySQL offers unmatched scalability to facilitate the management of deeply embedded apps using a smaller footprint even in massive warehouses that stack terabytes of data. On-demand flexibility is the star feature of MySQL. This open source solution allows complete customization to eCommerce businesses with unique database server requirements.
* *High Performance:* MySQL features a distinct storage-engine framework that facilitates system administrators to configure the MySQL database server for a flawless performance. Whether it is an eCommerce website that receives a million queries every single day or a high-speed transactional processing system, MySQL is designed to meet even the most demanding applications while ensuring optimum speed, full-text indexes and unique memory caches for enhanced performance.
* *Round-the-clock​ Uptime:* MySQL comes with the assurance of 24X7 uptime and offers a wide range of high availability solutions like specialized cluster servers and master/slave replication configurations.
* *Comprehensive Transactional Support:* MySQL tops the list of robust transactional database engines available on the market. With features like complete atomic, consistent, isolated, durable transaction support, multi-version transaction support, and unrestricted row-level locking, it is the go-to solution for full data integrity. It guarantees instant deadlock identification through server-enforced referential integrity.
* *Complete Workflow Control:* With the average download and installation time being less than 30 minutes, MySQL means usability from day one. Whether your platform is Linux, Microsoft, Macintosh or UNIX, MySQL is a comprehensive solution with self-management features that automate everything from space expansion and configuration to data design and database administration.
* ​*Reduced Total Cost of Ownership:* By migrating current database apps to MySQL, enterprises are enjoying significant cost savings on new projects. The dependability and ease of management that accompany MySQL save your troubleshooting time which is otherwise wasted in fixing downtime issues and performance problems.
* ​*The Flexibility of Open Source:* All the fears and worries that arise in an open source solution can be brought to an end with My SQL’s round-the-clock support and enterprise indemnification. The secure processing and trusted software of MySQL combine to provide effective transactions for large volume projects. It makes maintenance, debugging and upgrades fast and easy while enhancing the end-user experience.

**Tools:**

\_ MySQL:

MySQL the popular open source SQL database management system is developed, distributed and supported by Oracle Corporation with its proven performance, reliability and ease of use, MySQL has become the leading database choice for web-based applications, used by high profile web properties including Facebook, twitter, YouTube, Yahoo! And many more. Oracle drives MySQL innovation, delivering new capabilities to power next generation web. Cloud, mobile and embedded applications.