



TUNIS BUSINESS SCHOOL
UNIVERSITY OF TUNIS

Thneyti

A Tunisian Public Transportation
REST API

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Overview



1. Inspiration
2. What is Thneyti ?
3. Scalability
4. Challenges

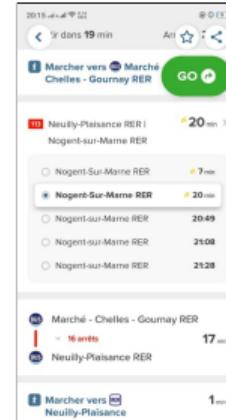
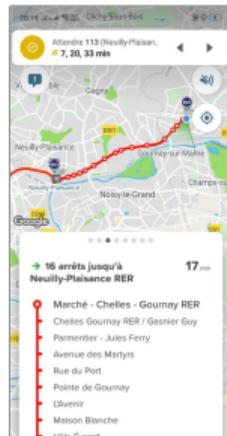
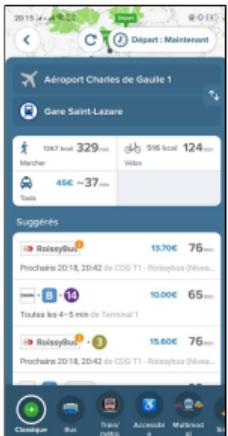
The background features a large teal triangle in the top-left corner and a light gray triangle in the bottom-right corner, both extending towards the center.

Inspiration

Inspiration

CityMapper app

Citymapper is **a public transit app and mapping service** which displays transport options, usually with live timing, between any two locations in a supported city. It integrates data for all urban modes of transport, including walking, cycling and driving, in addition to public transport.[1] (only available in the US, France, Germany, Switzerland and The Netherlands).[3]



Inspiration

Digitisation in Tunisia

Tunis, January 21st, 2022, Stacked in “cardboard boxes”: The “Ijeba” Syndicate publishes shocking pictures of thousands of research papers by doctors running for a debate. [4]

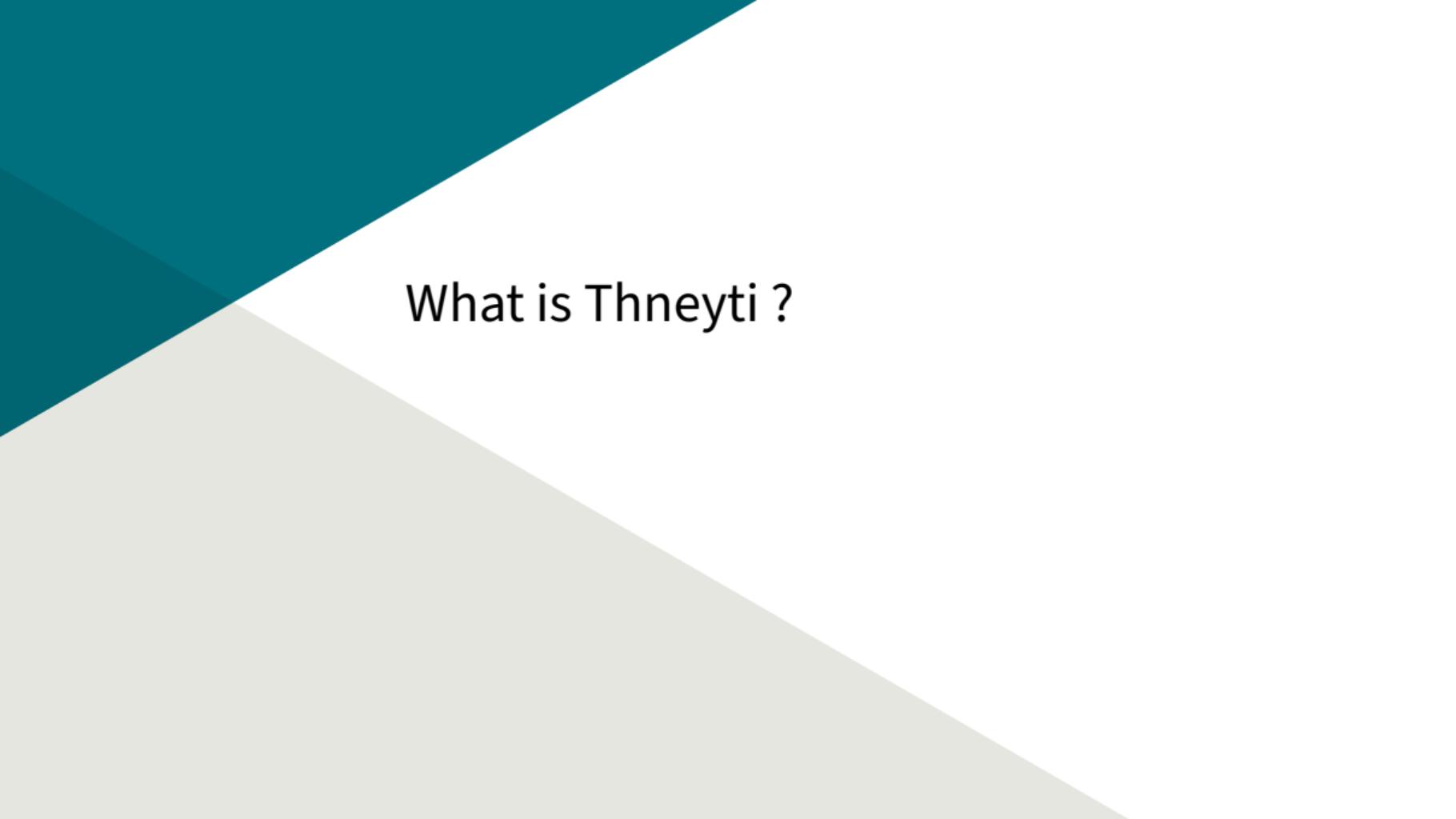


Inspiration

Public Transport in Tunisia

the information (destination, point of departure, and the route number) is only displayed in Arabic.[2] No guidance, manuals, or apps that could help tourists or anyone who's new to the city are available.



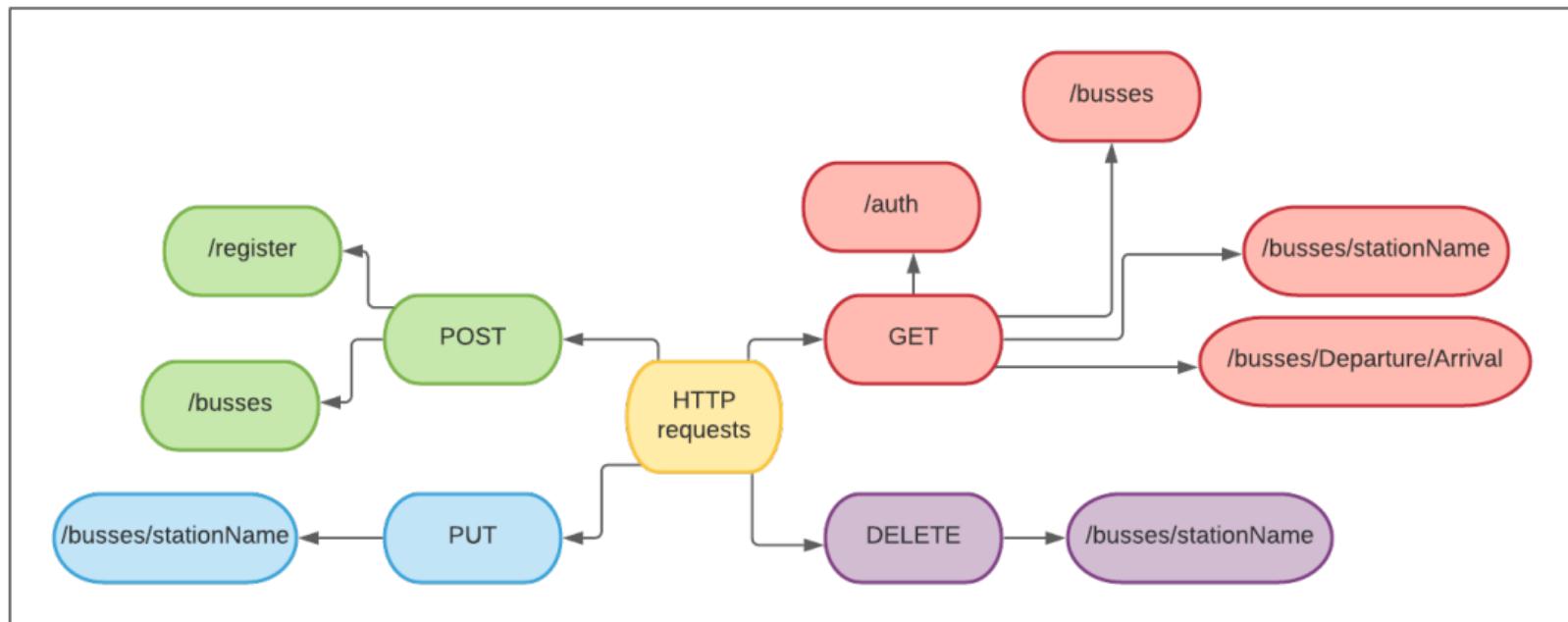


What is Thneyti ?

What is Thneyti ?

Definition, Functions and Features

Thneyti is a **public transportation REST API**, it enables its users to send the following requests :



What is Thneyti ?

Interface



A screenshot of a web browser displaying the Thneyti application. The URL in the address bar is "webservproject.herokuapp.com". The page features a header with the Thneyti logo (a red stylized 'D' icon followed by the word "Thneyti") and two orange buttons labeled "Login" and "Sign Up". The main content area has a dark background showing a blurred image of a modern transportation terminal with a glass roof and people walking. Overlaid on this image is white text that reads "Real-Time Tunisian Public Transportation REST API". At the bottom of the page, there is a footer with the text "Project By Sarra Koussaier Junior IT/BA @TBS" and a small number "6" in the bottom right corner.

What is Thneyti ?

Interface

Two side-by-side screenshots of a web application interface titled "Thneyti" against a blurred background of a subway train in motion. The left screenshot shows the "Log In" page with fields for "Email" and "Password", and a "Log in" button. Below the buttons is a link "Not registered yet? [Sign up](#)". The right screenshot shows the "Sign Up" page with fields for "Username" and "Password", and a "Sign up" button. Below the buttons is a link "Already have an account? [Log in](#)". Both pages feature a red logo consisting of a stylized 'D' or arrow shape above the word "Thneyti".

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What is Thneyti ?

Interface



The image displays two side-by-side screenshots of a web application interface for "Thneyti".

Left Screenshot: The title bar shows the URL `webseraproject.herokuapp.com/route/dashboard`. The header features the Thneyti logo and a red "API" button. The main content area has a dark background with a large white arrow pointing right. It displays the message "Welcome sarra" and the question "What would you like to use ?". Below this, there's a section titled "All The API endpoints :" followed by "GET requests :". Under "GET requests :", there are two input fields: "Departure station" (containing "Departure") and "Arrival Station" (containing "Arrival").

Right Screenshot: The title bar shows the URL `webseraproject.herokuapp.com/route/api`. The header features the Thneyti logo and a red "API" button. A modal window is open, displaying the text "Your API Secret Key :" followed by a long, complex string of characters. Below this, it says "This Api Key expires in 20 Minutes (1200s)". At the bottom of the modal are two buttons: "Generate new Key" (in black) and "Go Back" (in red). The footer of the page contains the text "Project By Sarra Koussaier Junior IT/BA @TBS".

What is Thneyti ?

Technically



Backend



EXPRESS

Frontend



EJS

Hosting in
the cloud



Testing and
Coordination



Web server

NGINX

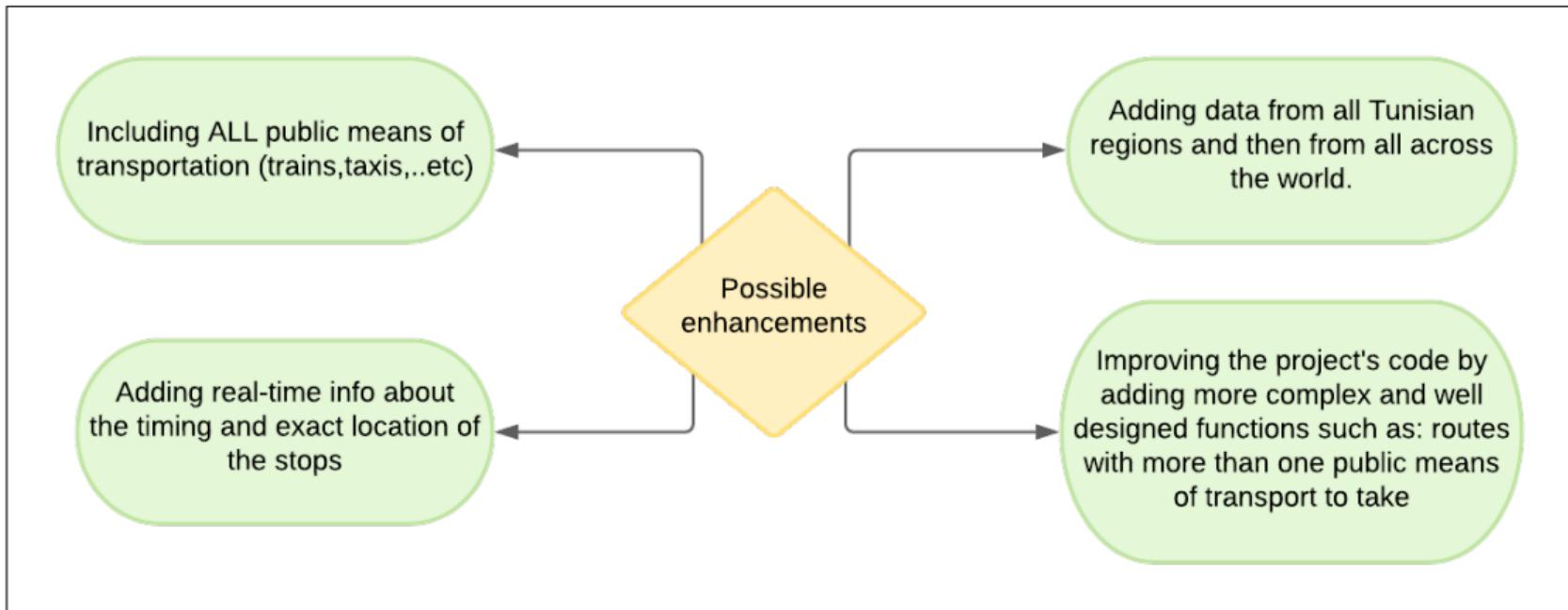
Security



Scalability

Scalability

Possible Enhancements



Challenges

Challenges

Problems that I faced and how I overcame them

- ▶ Database Hosting
solution: ElephantSQL
- ▶ Passing headers, parameters, and body objects in the browser
Solution: ModHeader Chrome Extension
- ▶ Connecting the JavaScript variables with HTML
Solution: Using .ejs files instead of .html (<%= %>)
- ▶ CSS files not being read by NGinX server
Solution: Combining the CSS code with HTML for a quicker fix
- ▶ CloudFlare not accepting the Heroku domain name since it is considered a subdomain
Solution: Finding out the free automatic SSL Certificates provided by Heroku instead of CloudFlare

Appendix : NginX.conf and app.js



```
const express = require('express');
const jwt = require('jsonwebtoken');
const {v4:uuidv4} = require("uuid");
const bodyParser = require("body-parser");

const router = require('./router');
const app = express();
const pool = require("./db");
const path = require("path");

app.use(express.static(path.join(__dirname, "public") ) );

app.set('views', './views');
app.set('view engine','ejs');

const session = require("express-session");

app.use(express.static(path.join(__dirname, "public") ) );

app.set('views', './views');
app.set('view engine','ejs');

app.use(bodyParser.json());
app.use(bodyParser.urlencoded({extended:true}));

//app.use(express.json()); //express.json is the middleware
app.use(session({
  secret: uuidv4(), // to generate a uuid to make the session unique
  resave: false,
  saveUninitialized:true
}));
```

```
C:\> nginx-1.21.5\conf> nginx.conf
23
24   server {
25     listen      80;
26     server_name localhost;
27
28     charset koi8-r;
29
30     #access_log  logs/host.access.log  main;
31
32     location / {
33       include      mime.types;
34       root        "C:\Users\sarra\Desktop\wsProject";
35       index      index.html index.htm;
36     }
37
38     location /busses {
39       proxy_pass http://localhost:3000;
40     }
41     #error_page  404          /404.html;
42
43     # redirect server error pages to the static page /50x.html
44     #
45     error_page  500 502 503 504  /50x.html;
46     location = /50x.html {
47       root    html;
48     }
49
50   }
51
52 }
```

Database Configuration + Postman Snippets



```
const Pool = require("pg").Pool;

const pool = new Pool({
  user: "xwnxumoi",
  password : "AjMBCYzR9HQjH4NF3IvB2P7QuZjT3Mw1",
  database: "xwnxumoi",
  host: "castor.db.elephantsql.com",
  port:5432
});

module.exports = pool;
```

A screenshot of a Postman test script. The interface shows tabs for Params, Authorization, Headers (10), Body, Pre-request Script, Tests (highlighted in orange), and Settings. The Tests tab contains the following code:

```
1 pm.test("Response time is less than 200ms", function () {
2   pm.expect(pm.response.responseTime).to.be.below(500);
3 });
4 pm.test("Status code is 200", function () {
5   pm.response.to.have.status(200);
6 });
```

References I

-  Citymapper.
<https://en.wikipedia.org/wiki/Citymapper>.
[Online; accessed 23-Jan-2022].
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<https://www.visatunisia.com/getting-around-tunisia/#:~:text=The%20biggest%20downside%20is%20that,contain%20one%20class%20of%20carss>.
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CityMapper, (1):1, 2022.

References II

-  T. N. News.
Stacked in “cardboard boxes”: The “ijeba” syndicate publishes shocking pictures of thousands of research papers by doctors running for a debate.
Nessma, (1):1, 2022.