

Midterm project

FRENCHEON



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GITHUB LINK:

**[HTTPS://GITHUB.COM/JCMERLE/
MAPQUEST-REST-API](https://github.com/jcmerle/mapquest-rest-api)**



THE PROJECT

Subject and reasons why we chose this project

FEATURES IMPLEMENTED

An easy-to-use map application

APPLICATION CODE

Code review and documentation

DEMO OF APPLICATION AND BACKLOG

User-like experience

TO END: REFLECTIONS

Issues faced and lessons learnt during the project

MapQuest

ABOUT THE PROJECT



FEATURE ENHANCEMENTS

The goal of this project is to improve the user experience and overall usability of the previous MapQuest API lab (4.9.2). Through easy-to-use displays and features.

AN INTERESTING PROJECT

A way to improve something we have worked on before in a more independent and professional-like way. The initial Lab 4.9.2 was interesting to all members. It is why we decided to implement new features and improve it.





Display preferences



Transportation preferences



Multiple itinerary and route options



Map display



Features to implement

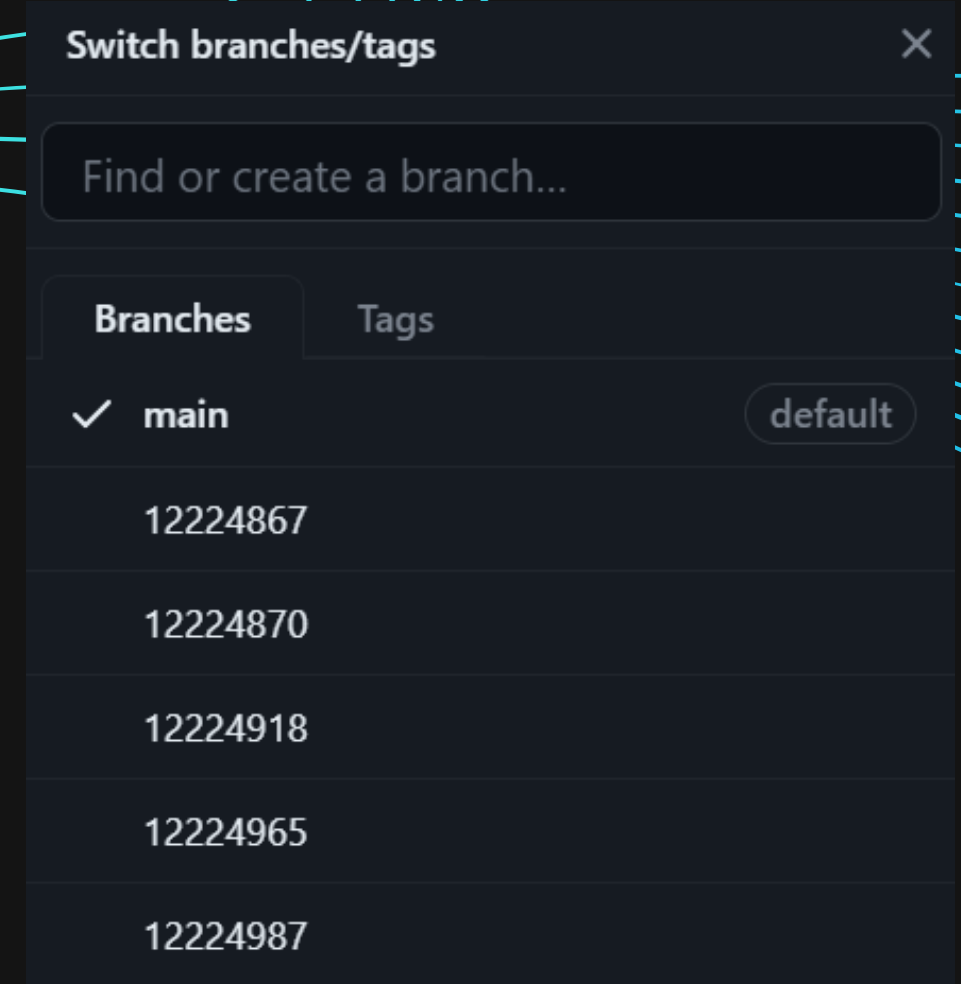
Github

INDEPENDANT EVOLUTION OF PROJECT

Through merging, we could obtain one file containing each member's features and code.

PERSONNAL AND GROUP WORK

Through personal branches, everyone could work at the same time or choose to work depending on their schedule.



REVIEW OF OTHER'S WORK

It is easy to navigate through branches. The comments added after each update allow one to easily understand new modifications

jcmerle Added traffic and scalebar, changed start and end markers		
📄	.gitignore	Added simple static map display
📄	README.md	Create README.md
📄	TODO.md	Added simple static map display
📄	mapquest.py	Added traffic and scalebar, changed s

```
map_type = input("Enter map type (map, hyb, sat, light, dark): ")
if map_type == "q" or map_type == "quit":
    break
elif map_type == "":
    map_type = "map"
while map_type not in map_options:
    map_type = input("Invalid map type, try again : ")
# Check if there are multiple locations
if len(dest_list) > 1:
    static_map_params = {
        "key": key,
        "size": "600,400@2x",
        "locations": orig + '||' + '||'.join(map(str, dest_list)),
        "defaultMarker": "marker-num",
        "type": map_type,
        "scalebar": "true",
        "traffic": "flow|cons",
    }
```

```
else:
    static_map_params = {
        "key": key,
        "size": "600,400@2x",
        "start": orig + "|flag-start",
        "end": dest_list[-1] + "|flag-end",
        "type": map_type,
        "scalebar": "true",
        "traffic": "flow|cons",
    }
```

code review:

Shown above is the "choosing map appearance" feature. Multiple options such as "light or dark" themes are available. Easy loops such as if and elif are used to set the map options according to the user's choices saved using the input function.

The main element of this code is the use of the already existing url setter.

```
def unitconf():
    print("What unit system should be used to display distance?")
    while True:
        unit_choice = str(input("Type in 'km' for kilometers or 'mi' for miles.\n"))
        if unit_choice == "km":
            print("Unit changed to kilometers.")
            unit_choice= "k"
            break
        if unit_choice == "mi":
            print("Unit changed to miles.")
            unit_choice= "m"
            break
        else:
            print("Unit not recognized. Kilometers will be used as default settings.")
            unit_choice= "k"
            break
```

code review

Asking the user for route options:

Defining special configurations such as the walking one: defining walking speed and setting the parameters/itinerary to fit pedestrians.

```
def carBasicConfig(avoid, disallows):
    roadConf("Limited access road (highways)", "Limited Access", avoid, disallows)
    roadConf("Toll road", "Toll Road", avoid, disallows)
```

Defining the units using loops and the already built-in parameters.

```
def walkingConf():
    while True:
        global walkingSpeed
        choice = input("\n\nChoose your walking speed:\n\n- '0' : " + str(walkingSpeed) + " (default)\n\n- '[Your value]' : enter a default value up to 0.42 and under 42\n\nyou can use a decimal point '.' one number after it (ex: 2.5)\n\n$> ")

        if choice == "" or choice == "0":
            break
        else:
            try:
                temp = float(choice)
                if temp >= 0.42 and temp <= 42.0:
                    walkingSpeed = temp
                    break
                print("/!\ bad value, please refer to the instruction and try again.")
            except:
                print("/!\ bad value, please refer to the instruction and try again.")
```

Possibility to avoid or disallow options

Future features to add

If we were to be actual developers working full time on MapQuest, here are a few suggestions we would add to our code



Save favorites



Point of interests



Report real-time event



Merging branches

We can see that I made modifications but I haven't updated the main branch yet. It's time to merge:

There are two main steps: code versions checking, and actual merging. On github, we can manually compare versions of files as shown below:

12224987 6 branches 0 tags

Go to file Add file <> Code

This branch is 7 commits ahead, 1 commit behind main. [Contribute](#)

maeliech Update README.md 8be59f0 2 days ago 16 commits

README.md	Update README.md	2 days ago
TODO.md	Added todoclist file	last week
mapquest.py	Added a unit choice feature	2 days ago

287 mapquest.py

@@ -2,73 +2,238 @@

2 import requests

3

4 main_api = "https://www.mapquestapi.com/directions/v2/route?"

5 - key = "3vVAToG1jRZVLBtLMDdyciN3z2jmpgen"

6 -

7 - # Loop to get user inputs and fetch directions

8 - while True:

9 - # Get origin location input

10 - orig = input("Starting Location: ")

11 - if orig == "quit" or orig == "q":

12 - break

13 - # Get destination inputs

14 - dest_list = []

15 while True:

2 import requests

3

4 main_api = "https://www.mapquestapi.com/directions/v2/route?"

5 + key = "s289RKzpSiXWCRJhHUWeQy9Auxwx1Y3k"

6 +

7 + route_option = ""

8 + user_avoids_option = []

9 + user_disallows_options = []

10 + avoids_option = []

11 + disallows_options = []

12 + walkingSpeed = 2.5

13 +

14 + unit_choice = "k" #by default

15 +

16 + def unitconf():

17 + print("What unit system should be used to display distance?")


18 while True:


Merging branches

After selecting the branch to merge, we can pull a request to discuss with other members their opinion. We can add a comment and title to be more precise about the merging.

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).

 base: main ← compare: 12224965 ✓ Able to merge. These branches can be automatically merged.



merging route options

Write

Preview

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Merging branches

After selecting the branch to merge, we can pull a request to discuss with other members their opinion. We can add a comment and title to be more precise about the merging. If conflicts have been found, we can solve them by manually looking at the code.

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).

 base: main  compare: 12224965 ✓ Able to merge. These branches can be automatically merged.



merging route options

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This branch has conflicts that must be resolved

Use the [web editor](#) or the [command line](#) to resolve conflicts.

Conflicting files

mapquest.py

Resolve conflicts

App demo

Choosing route and display preferences:



SHOWING END RESULT

User-like experience

(long URLs not relevant for this demo have been cut for better display and understanding of output)

```
PS C:\Users\Cedric\Desktop\Inha Courses\Software Engineering> python .\map.py
What unit system should be used to display distance?
ⓧ name for using place's name or coordinates to using coordinate of places (lat, longitude)
name
```

```
Enter a route option:
- '0' : Car with quickest drive time route (default)
- '1' : Car shortest driving distance route.
- '2' : Walking
- '3' : Bicycling
```

```
$> 0
```

```
Current user configuration:
```

```
route type to avoid:
```

```
- none
```

```
route type to disallow:
```

```
- none
```

```
Car route configuration:
```

- '0' : No configuration (default)
- '1' : Custom user configuration
- '2' : Basic configuration
- '3' : Extended configuration
- '4' : Define custom user configuration

```
$> 0
```

```
URL: https://www.mapquestapi.com/directions/v2/route?key=s289RKzpSiXWCRJhHUWe
```

Choosing destination and unit

```
Starting Location: Washington DC
```

```
Enter Destination (type 'done' or 'd' when finished): Baltimore Md
```

```
Enter Destination (type 'done' or 'd' when finished): d
```

```
Type in 'km' for kilometers or 'mi' for miles.
```

```
km
```

```
Unit changed to kilometers.
```


App demo

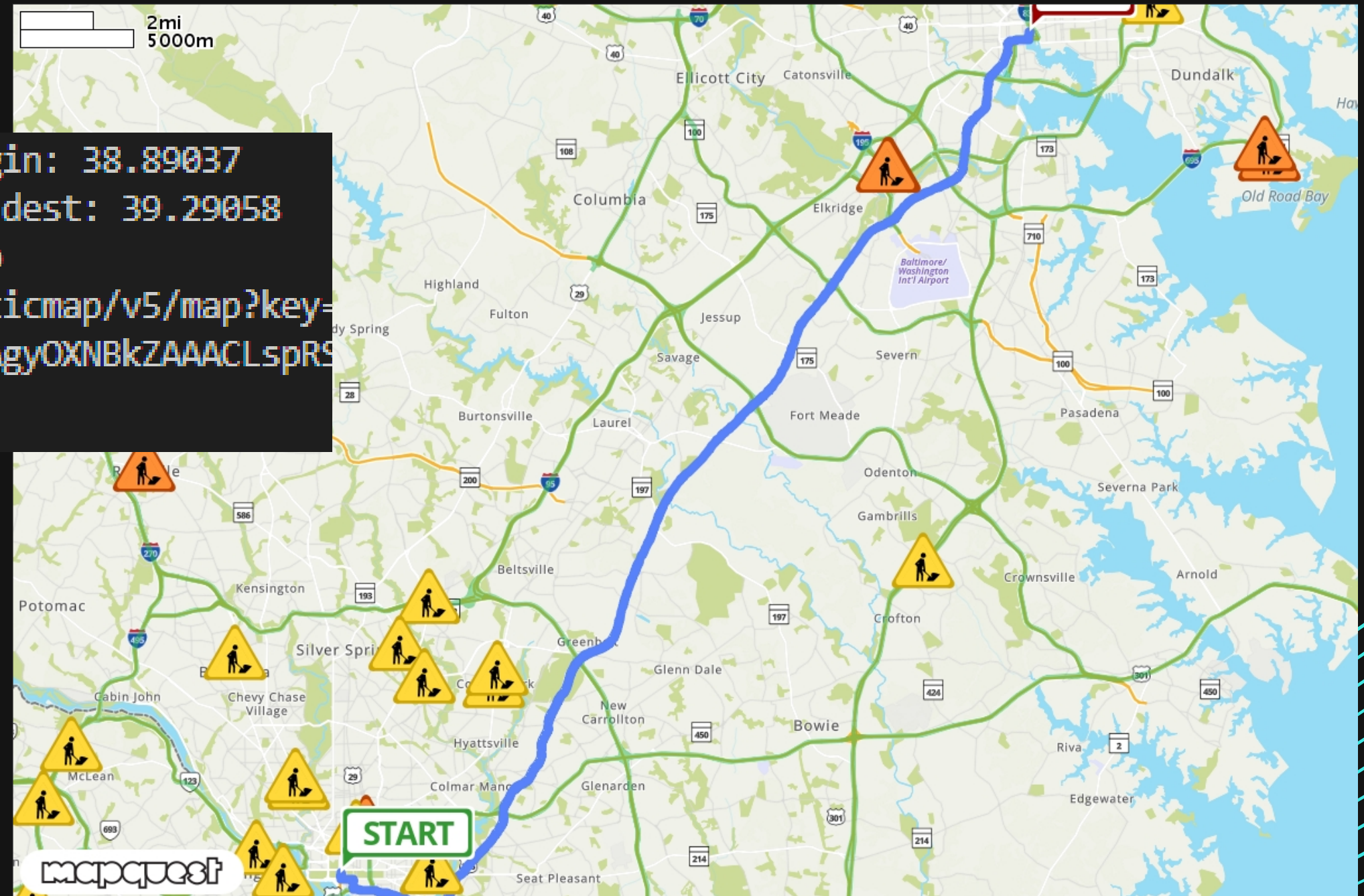


SHOWING END RESULT

User-like experience

Description of locations and map display

```
Longitude of origin: -77.03196, Latitude of origin: 38.89037
Longitude of final dest: -76.60926, Latitude of dest: 39.29058
Enter map type (map, hyb, sat, light, dark): map
Static Map URL: https://www.mapquestapi.com/staticmap/v5/map?key=
XPfwg_Ra4H0XyDNgAPkV0jw7QLSDWsUAhg4GRgEBECiHAILAgyOXNBkZAAACLspRS
API Status: 0 = A successful route call.
```



(long URLs not relevant for this demo have been cut for better display and understanding of output)

App demo

Directions are displayed in an easy-to-read and understandable way.

Additional informations are provided at the end of the itinerary.

*(long URLs not relevant for this demo
have been cut for better display and
understanding of output)*



SHOWING END RESULT

User-like experience

```
=====
Directions from Washington DC to Baltimore Md:
Trip Duration: 00:52:44
Kilometers: 105.46
=====
Head toward Jefferson Dr SW on 14th St NW (US-1). Go for 317 m. (0.48 km)
Turn left onto Independence Ave SW. Go for 670 m. (1.13 km)
Turn slightly right and take ramp onto 9th St SW toward I-395 S. Go for 541 m. (0.81 km)
Take left ramp onto I-395 N (Southwest Fwy) toward I-695. Go for 492 m. (0.81 km)
Continue on I-695 (Southeast Fwy). Go for 3.0 km. (4.83 km)
Take exit 2B toward US-50 onto DC-295 N (Anacostia Fwy). Go for 7.2 km. (11.59 km)
Continue on MD-295. Go for 50.8 km. (81.79 km)
Keep left onto Russell St (MD-295). Go for 889 m. (1.45 km)
Turn right onto W Pratt St toward I-83. Go for 623 m. (0.97 km)
Continue on E Pratt St. Go for 422 m. (0.64 km)
Turn left onto Commerce St. Go for 131 m. (0.16 km)
Continue on Commerce St. Go for 210 m. (0.32 km)
Continue on N Holliday St. Go for 86 m. (0.16 km)
Turn right onto E Fayette St. Go for 83 m. (0.16 km)
Arrive at E Fayette St. (0.00 km)
=====

Longitude of dest n°1: -76.60926, Latitude of dest: 39.29058
Total Trip Duration: 00:52:44
Total Trip Kilometers: 105.46
```

Reflections:

We faced some challenges. Even though most of our suppositions were accurate, it was complicated to organize regular meetings as we all had different schedules. In the end no one ever failed to share their work on time but it felt stressful for some team members.

Working as a group helped us be more independant but also respectful of each other's work as we were all learning. One could make a constructive critic about another's work without any problem. As we regurlaly reviewed each member's code, we learnt how to better produce a clean code and leanr from each other.

Thank you

FRENCHEON