Passenger Transportation BMEKOKUM208

Task 2
Measurement and analysis of the travel time
Quality evaluation, route modelling and mode selection
(Task 3) determination and observation of the necessary parameters

Aim of the task is to measure the travelling time between two destinations in Budapest (with the averaging of the results), and the evaluation and comparison of the travel based on different aspects.

Starting point: **BME St. building, Main entrance**

Ending point: **Budapest, Nyugati tér, WestEnd City Center, Main entrance**

Please select a route from the list below and analyze according to the assignment of task 2 and 3:

1. By bike,
2. On foot + BUBI,
3. By motor,
4. By car,
5. On foot + tram nr. 4-6,
6. On foot + M4 + M3 (changing point: Deák Ferenc tér),
7. On foot + tram nr. 47-49 + M3 (changing point: Deák Ferenc tér),
8. On foot + tram nr. 18 + tram nr. 4-6 (changing point: Széll Kálmán tér),
9. On foot + tram nr. 61 + tram nr. 4-6 (changing point: Széll Kálmán tér),
10. On foot + bus nr. 7-107 + M3 (changing point: Ferenciek tere),
11. On foot + bus nr. 133E + tram nr. 4-6 (changing point: Blaha Lujza tér),
12. On foot + bus nr. 133E + M3 (changing point: Ferenciek tere),
13. On foot + tram nr. 4-6 + M3 (changing point: Corvin negyed),
14. On foot + bus nr. 7-107 + bus nr. 9 (changing point: Astoria),
15. On foot + bus nr. 133E + bus nr. 9 (changing point: Astoria),
16. On foot + M4 + tram nr. 2 + tram nr. 4-6 (changing points: Fővám tér, Jászai Mari tér),
17. On foot + tram nr. 47-49 + tram nr. 2 + tram nr. 4-6 (changing points: Fővám tér, Jászai Mari tér),
18. On foot + tram nr. 4-6 + tram nr. 2 + tram nr. 4-6 (changing points: Boráros tér, Jászai Mari tér).

The measurement should be carried out two times, both for outward and return journey. The outward and return journey should be carried out in the same way and part of day. Please use a GPS tracker device. It is advisable to choose a smartphone with an application that can export data in *kml* or *kmz* format which is suitable for Google Earth and can be easily transformed into a file format that MS Excel can handle.

During the measurement calculate the average of the two ways and separate the outward and return journey. The following characteristics should be defined for the components and for the total travel:

- walking (distance, time, average speed)*,*
- waiting time (time),
- travel – on the move (distance, time, average speed),

- travel - stop (time)
  [waiting time between stops or in the stop on the vehicle, traffic disturbance, traffic lights],
- total travel (distance, time, speed, proportions of the components).

Visualize the results in table form and on map too.

Write a short evaluation according to spatial and temporal features. Give some explanation for the typical and outlier values (stairs, lamps, walking distances, hubs, changing characteristics)

Define (estimate) all the characteristics of the travel (the average of the two ways)**:**

- **C: cost (assuming that the traveler doesn't have any pass) [HUF],**

- **D: distance [km],**

- **T: time [min].**

Submission: in editable Microsoft Word format (.doc or .docx), which should submit to the teaching assistant's e-mail address. The name of the file should be your name (Firstname_Familyname).

Bálint Csonka: csonka.balint@mail.bme.hu