Assignment 3: Group Project (Assessed)

In a nutshell...

You have been asked by a government scientific agency to assist in the analysis of the moving objects. "Movement analysis" is an increasingly important area of visual analytics. The agency has asked for an interface to movement data that will help them understand and analyze patterns of movement in a variety of data sets. In particular, the agency is interested in diverse questions including (but not limited to): Where and when do individuals travel? What places and roads are most frequented? What coordinated movement patterns exist? And are there anomalies where individuals or or groups exhibit unusual movements?

Your task is to develop using Processing an exploratory user interface to one or more of the data sets provided. Your interface should be intuitive and easy to use, carefully designed, and help the agency identify or discover interesting patterns in the data.

Assessment

This exercise is to be completed in groups of three or four.

The assessment is worth **45%** of your final subject mark. This assessment will comprise a report of your developed interface (**25%** of your assignment mark), an oral presentation of your work including live testing (**10%** of your assignment mark), and report of your intividual participation/contribution to the group project (**10%** of your assignment mark).

You must submit your report through the course web site by the stated deadline:

1. a pdf design summary (maximum 2 pages) explaining what your tool does, how it works, and what features of the design you would like to receive credit for;
2. a pdf summary (maximum 2 pages) showcasing some of the patterns you have found in the data, and a short rationale as to why your interface helped in those discoveries (patterns summary).
3. a pdf summary (maximum half a page) explaining what your individual contributions to the project design and implementation were (provided as part of the Appendix of the group report with your name on it).
4. fully commented code and data for your working interface, submitted as a single zipped .zip file of your Processing sketch directory and named XXXXXX.zip (where XXXXXX is the student number of the submitting student);

During the **lecture of Week 12**, we will have the oral presentations. Your oral presentation must be a concise 10-minute pitch to the client (the government agency, represented by the class, tutor, and a panel), in which you present your aim, method and advantages of your interface, together with a short live demonstration. This will be followed by 5-minutes of feedback/questions. The goal here is effective communication (requiring thorough preparation). After all presentations, everyone will have the opportunity to try out and critique the proposed interfaces. **During the lab of Week 12** your code and functionality will be examined in more detail by your tutor.

You can use as your data set one or more of the three data files available from the course web site. These data files are:

- GeoLife trajectories (http://research.microsoft.com/en-us/downloads/b16d359d-d164-469e-9fd4-

daa38f2b2e13/)
- Dublin bus data (https://data.dublinked.ie/dataset/dublin-bus-gps-sample-data-from-dublin-city-council-insight-project/)
- Oyster catcher trajectories (http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0037997)

**Alternatively, if you want a bigger challenge, you may find your own data.

If you do stick with the provided data, you may select a subset of records from the provided files if it is appropriate to your interface design. You may also find and use further data sets as appropriate (e.g., transport network, maps, weather data, etc). However, when submitted, your .zip file containing your Processing code and data sets must be less than 10MB in size (i.e., do not include the supplied data files in your submitted .zip file). You are free to use larger data sets in your demonstration.

In your design summary you should highlight the design rationale for your interface, as well as provide some information on how to use your interface. In your patterns summary you should highlight the most important patterns you can find with your interface, explaining how the features of your interface assist in making such discoveries.

In your presentation, you should focus on three main areas: 1. your design rationale, showing how you designed your interface and what features you included or excluded; 2. demonstrating your interface running live with data; and 3. examples of the patterns you can identify or questions you can answer using your interface.

The submission deadlines are clearly stated below and on the course web site.

Important dates

- The oral presentations and live demos will be assessed in lecture of **Week 12, Monday 15 October 2018.**
- The code and functionality will be more thoroughly examined during the lab of **Week 12, Tuesday 16 October 2017** (same as above).
- The written report and code is due for submission by **9pm Monday 22 October, 2018.**

No late submissions will be accepted. This means submissions after the stated deadline will not be marked and will receive a mark of zero.

Assessment Criteria

The key assessment criteria for the oral presentation are:

- Organisation: Well-prepared and runs to time.
- Content: Focuses on the three main areas (detailed above).
- Style: Engages the client, responds well to questions and criticisms and involves all the team members (1 speaker may be chosen, all others must be present).

Oral presentation rubric can be downloaded here

The key assessment criteria for the submitted system and documentation are:

- Submission: The submission is in the correct formats, all data and files are present, and submission

accords with other instructions above; the code works when run on the marker's machine without further editing; the submission contains any and all necessary data and files (aside from supplied.tsv file); and conforms with all the submission criteria above.
- Design: The interface and supporting documentation conforms to basic graphical/map/interface design principles; and are well-presented with evidence of care and attention to detail.
- Technical challenge: The interface relies on new or different programming techniques not encountered in class or previous assessments; has particularly compact, well-structured, or well-presented code; and/or demonstrates clear evidence of advanced and independent work.
- Design innovation: The interface involves design elements that are innovative; reveals interesting or meaningful patterns; is notably aesthetically pleasing or striking; demonstrates independent background research into the research literature; and/or existing demonstrates clear evidence of original thinking and advanced understanding of map, interface, and graphical design principles.

As a guide to grade-related criteria:

- <50%: *Inadequate work* that in one or more respects fails to meet basic technical standards or apply basic design principles.
- 50-60%: *Satisfactory work* that is a correctly submitted basic interface to the data.
- 60-70%: *Good work* that involves marginal additional technical challenge or marginal design innovation, and moderate levels of design quality.
- 70-80%: *Excellent work* that involves clear additional technical challenge and additional design innovation and high levels of design quality.
- >80%: *Outstanding work* that demonstrates substantial additional technical challenge, substantial design innovation, flawless design, and involves work that clearly goes beyond that normally expected in class.

Hints

- You should plan and practice your presentation carefully, and try to innovate. How could you demonstrate your system without simply having your audience watch you use it?
- You should think carefully about any visual aids you use in your presentation. When presenting interface functionality, perhaps plain PP slides are not enough. Choose your visual aids carefully.
- Spelling, grammar and presentation are part of the assessment. Your presentation, visual aids, code commenting, and associated documentation should exhibit attention to detail, and should be free of errors.
- You are not required to have your interface working with all three data sets. However, extra marks are available for any interfaces that are general enough to allow all the different data sets to be loaded: a general-purpose movement analysis system would need to work with many different types of movement data sets, and achieving this represents a high level of technical and design challenge.

Presentation tips

Public speaking is a nerve-wracking experience for many, but a essential skill for all. Here are some tips to help both beginner and more accomplished presenters: the 5Ps.

- *Practice*: The real secret to good presenting is practice, plain and simple. The more you practice, the better your talk gets, and the more confident you will become in your talk.
- *Pace*: Pauses are your friends. Listen to any great speaker today or from history (e.g., Obama). Now listen again and forget what they say; listen instead for what they don't say, when the pause. In

public speaking, less is more. Do not rush your talking, and give yourself space between your words and sentences.
- *Practice*: Don't just practice in your head, in your room. Practice out loud. And practice out loud in front of other (awake) humans.
- *Poise*: We all have annoying habits when talking to people: jingling change in our pockets, picking our ears, hopping from foot to foot, not looking at our interlocutor. Stand up in front of an audience to speak and these habits are greatly magnified. Set yourself and stand comfortably with your weight evenly between your feet. If you are a fidget, hold onto something, like a table, to stop yourself moving around too much. Empty your pockets. Unless you are confident using your hands for emphasis (advanced speaking) keep your hands comfortably by your sides, or loosely clasped in front of you. And most importantly, look at your audience, ideally in the eyes. Don't look at the screen or the floor, the audience will not be won over by the back or top of your head.
- *Practice*: Did I already mention this?

Actually, there are only 3Ps there, but practice is so important it is worth counting a few times.

Plagiarism

Plagiarism is copying and use of another's work without proper acknowledgment. The university has a clear policy prohibiting any form of plagiarism. Further information can be found at: http://www.services.unimelb.edu.au/plagiarism/.

Note that it is acceptable to reuse ideas and code you have found on the web *as long as the source is clearly acknowledged, and that use is permitted by any license restrictions*. If properly acknowledged, using other people's code and ideas can count as independent background research (see grade related criteria above). If not properly acknowledged, using other people's code and ideas is plagiarism and will result in a mark of zero for this assessment. In serious cases plagiarism may also result in failure of the entire subject and further University disciplinary action.

In short: you must clearly acknowledge any material you have used in your assessment.

Coda

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