Assignment 3: Group Project (Implementation and Report)

Start Assignment

Due Oct 23 by 23:59 **Points** 100 **Submitting** a file upload **File Types** pdf, zip, and txt

Task

In the age of big and open data, it is important to be able to sort through many different datasets, organise them for a specific purpose and decide on a visualisation based on contextual factors, such as target audience or purpose.

For Assignment 3, we will work with a large dataset with various themes of information about the City of Melbourne local government area.

Your task is to pick a target audience and create an interactive visualisation/interface that will be tailored to one of the following user groups. Your interface should be intuitive and easy to use, carefully designed, and help the users to discover interesting and practical information about the City of Melbourne or help the government agency identify interesting patterns in the data or make decisions for specific tasks.

Your interface could include embedded Tableau data graphics connected to R via the Rserve package, R and Shiny charts or any other visualisation tools. There is no restriction on the visualisation tools you want to use. You can go beyond the labs and use other software or technologies you want. The assessment will not be based on the tools; however, tools can help you to improve your interface. For example, you could employ any web-based visualisation libraries/tools of your selection to create an interactive web visualisation to boost technical challenges; you could use Tableau API to publish your interface on the web; you could use Mapbox to publish an interactive map on the web, etc.

The process will include the following steps:

- data selection and formatting
- some descriptive statistics and data analyses
- designing the final visualisation with the information hierarchy in mind (UX/UI/Tableau story)
- a final testing phase.

Your group needs to select one of the following user groups:

1. Tourists who would like to/are visiting Melbourne (hint: useful layer is e.g. POIs (Point of Interests))
2. Local citizens who often commute to the CBD (useful layers: public transport networks)
3. A state government department that is interested in the performance of any of public transport, Metro Tunnel, vehicle volume, pedestrian counts, etc. (not limited to transport)
4. If you would like to target a different user group, please speak with the lecturer.

Tip: not all datasets are useful for every audience, so be mindful of potential information overload. For example, turning on and off layers can help with this.

The key questions to ask include (but are not limited to):

- Where and when will individual users use the interactive visualisation?
- What places are most frequented/popular?
- What patterns can be found?
- Are there any anomalies or specifics of any particular location/type of data?
- What platform should be used (web, mobile, kiosk, etc.)?

Submission

You need to make two (2) submissions **as a group:**

A. Implementation and Report (Commented Code + PDF Report)

B. Video

A. Implementation and Report (Commented Code + PDF Report)

One group member must submit **two** files into this assignment by the stated deadline:

1. A single ZIP file containing your interface and any required data. The interface can be an HTML file**,** a Tableau story connected to R, etc. You can include any other files that are needed. The submitted file(s) will be viewed by the marker.

2. A PDF report that contains the following sections

I. a design summary (maximum 2 pages) explaining:

- what your interface **does**
- how it **works**
- what **features** of the design you would like to receive credit for
- a justification of the **design decisions** made (e.g. why a particular colour scheme is used, or why a particular graph is the best visualisation of the underlying data)

II. a summary (maximum 2 pages) showcasing:

- some of the **interesting or useful patterns** or **information** that the interface helps you discover (standing in the shoes of the target user group(s)), and
- a short **rationale** as to why your tool helped in those discoveries or use cases.

Tip: the rationale may link with the design decisions mentioned above. Also, the best summaries will make links back to the lecture materials or additional readings.

B. Video

See **Assignment 3: Group Project (Video)**.

Assessment

This exercise is a group-based assignment. The assessment is worth **45%** of your final subject mark. This assessment will comprise a report of your developed tool (**30%** of your total assignment mark) and a recorded video of your work including a demonstration of the developed tool (**15%** of your total assignment mark).

The rubric for the interface and report can be found below. See **Assignment 3: Group Project (Video)** for the rubric for the video.

Datasets

The following is a list of suggested layers and tables. You can **download them here** (https://canvas.lms.unimelb.edu.au/courses/138795/files/11837369/download?download_frd=1) as a geodatabase (.gdb) - extract the folder from the .zip file without changing the folder name.

Data theme	Data source	License
BusMetroRoutes	DELWP	CC BY 4.0
BusRegionalRoutes	DELWP	CC BY 4.0
CityActivitiesAndPlannedWorks	City of Melbourne	CC BY 4.0
Melbourne_Bicycle_Routes_MGA	City of Melbourne	CC BY 4.0
Melbourne_Building_Footprints_MGA	City of Melbourne	CC BY 4.0
Melbourne_CityCircle_tram_MGA	City of Melbourne	CC BY 4.0
Melbourne_Municipal_Boundary	City of Melbourne	CC BY 4.0
Melbourne_OpenSpace	DELWP	CC BY 4.0
Melbourne_POIs	City of Melbourne	CC BY 4.0
Melbourne_Roads	City of Melbourne	CC BY 4.0
Melbourne_Street_Names_MGA	City of Melbourne	CC BY 4.0

Data theme	Data source	License
Melbourne_Tram_Routes_MGA	DELWP	CC BY 4.0
mtp_ees_future_stn_entrances (Metro Tunnel)	DELWP	CC BY 4.0
mtp_ees_station_entrances (Metro Tunnel)	DELWP	CC BY 4.0
mtp_ees_tunnel_entrances (Metro Tunnel)	DELWP	CC BY 4.0
mtp_ees_underground_rail_track (Metro Tunnel)	DELWP	CC BY 4.0
Road_Use_Hierarchy	DELWP	CC BY 4.0
SuperSundayBikeCount	City of Melbourne	CC BY 4.0
TaxiRank	City of Melbourne	CC BY 4.0
trainCorridorCentreline	DELWP	CC BY 4.0
trainStations	DELWP	CC BY 4.0

You may find the following data useful as well:

- Download **Melbourne Metro Trains Cordon Station Average Load by Service - October 2013 - data.xlsx** (https://canvas.lms.unimelb.edu.au/courses/138795/files/11998005/download?download_frd=1)
- Download **Train Station Entries 2008-09 to 2011-12 - data.xls** (https://canvas.lms.unimelb.edu.au/courses/138795/files/11998006/download?download_frd=1)

Tip: You will start with exploring and analysing given datasets in Tableau or a GIS package (ArcMap or QGIS). You will then have a choice to export your chosen datasets into other formats (GeoJSON or Shapefiles) if required. These types of files can then be uploaded into Mapbox Studio, Tableau, or etc.

You are encouraged to search for additional datasets. We can recommend:

- City of Melbourne – Open Data Portal **https://data.melbourne.vic.gov.au/ (https://data.melbourne.vic.gov.au/)**.
- Victorian Government open data **https://data.vic.gov.au/ (https://data.vic.gov.au/)**
- A good GIS source directory can be found at the University of Melbourne Library: Australian GIS data guide: **http://unimelb.libguides.com/GIS (http://unimelb.libguides.com/GIS)**

You may select a subset of data from the provided dataset if it is appropriate to your design. You may also find and use further data sets as appropriate (e.g. weather data, etc).

Important dates

You must submit the two parts of the project by **23 October 2022, 23:59 pm**.

A late penalty may be applied on the basis of the lateness if there is no extension being approved prior to the deadline. Students must apply for an extension directly to the faculty and/or in accordance with the faculty's published process; and prior to the submission deadline or performance date of the assessment task. For more details, please refer to **https://ask.unimelb.edu.au/faq/5667/ (https://ask.unimelb.edu.au/faq/5667/)**.

Assessments submitted after the original due date without an extension, or after the new due date if an extension has been granted by the Subject Coordinator, will be subject to a penalty of **10% in the mark received in this assessment for each working day the assessment task is late**. For example, if you are late by one day and your assessment reaches a standard of 80 out of 100, you will now receive 70 in this assessment only.

Assessment criteria

The key assessment criteria for the **submitted interface** and **Reports** are: Basic design (25%), Technical challenge (25%), Design innovation (25%), and Report (25%). See Rubric for more details.

As a guide to overall grade-related criteria:

- <50%: *Inadequate work* that fails to meet basic technical standards or apply basic design principles in one or more respects.
- 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

- Plan to submit on time.
- Try to be creative and innovate.
- Think carefully about any visual aid you use in your tool and video.
- When recording the video and presenting interface functionality, perhaps you can use PowerPoint slides and interface to demonstrate different aspects of the tool.
- Spelling and grammar are part of the assessment. Your video, visual aid, code commenting, and associated documentation should exhibit attention to detail, and should be free of errors.
- Including an interesting infographic in your interface can earn you extra points!
- In your design summary, you should highlight the design rationale and design choices for your interface.
- In your report, you should provide some information on how to use your interface.
- In your report, you should highlight the most important information that is being presented in your interface, explaining how each features of your interface assist in learning about Melbourne for your chosen audience/map user.

Plagiarism

Plagiarism is copying and use of another's work without proper acknowledgement. The university has a clear policy prohibiting any form of plagiarism. Further information can be found at **this website** **(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

Q&A

If you have any questions about Assessment 3, please post them on the **Discussion Board** for this assessment. The tutors will attend to questions there on a regular basis. If you know the answer to any questions, you are also welcome to post your answer. You can also ask questions in the lab sessions. We are a learning community and interaction is always welcome. Of course, if you have any specific questions, you can also email your tutor to seek help.

Plagiarism declaration

By submitting work for assessment I hereby declare that I understand the University's policy on **academic integrity** **(https://academicintegrity.unimelb.edu.au/)** and that the work submitted is original and solely my work, and that I have not been assisted by any other person (collusion) apart from where the submitted work is for a designated collaborative task, in which case the individual contributions are indicated. I also declare that I have not used any sources without proper acknowledgment (plagiarism). Where the submitted work is a computer program or code, I further declare that any copied code is declared in comments identifying the source at the start of the program or in a header file, that comments inline identify the start and end of the copied code, and that any modifications to code sources elsewhere are commented upon as to the nature of the modification.
