**Climate Facts Script/ Video Instructions**

**Preliminary:**

**Slide 1:** This is Riley Hampson doing Digital Solutions IA1.

**Task Information:**

**Slide 2:** My proposal is for **Climate Facts,** a responsive and interactive web application that will help inform Queenslanders with factual data and information surrounding climate change.

**Slide 3:** Here is a guide for this presentation. First, we will go over the task information and requirements. Secondly, we will go through the technical proposal.

**Slide 4:** This task has been broken down into multiple parts as shown. These include but aren’t limited to Data requirements, Algorithmic components, Innovative Solutions, and an evaluation against the set criteria

**Slide 5:** The 4 main constraints for this task are Time, Data, Legal & Communication.

**Slide 6:** Here are the Prescribed and Self self-determined criteria.

**Technical Proposal:**

**Introduction**

**Slide 8:** The Queensland Government's Department of Environment and Science (or DES) has many responsibilities, one of them being to “Avoid, Minimise or Mitigate impacts to the environment”.

**Slide 9:** The department is especially worried about misinformation surrounding climate change, specifically, Greenhouse Gas Emissions as they are the government body responsible for this data in QLD. This is why the department has tasked us with developing a technical proposal for a web application, to ensure easy access to correct and unbiased data that allows QLDs to form their own opinion.

**User Story:**

**Slide 11:** The current application that hosts the emissions data set is the QLD Gov ‘State of the Environment’ website. To begin with, the URL for the page isn’t memorable or easy to type out. *\*Edit in URL (*[*https://www.stateoftheenvironment.des.qld.gov.au/pollution/greenhouse-gas-emissions*](https://www.stateoftheenvironment.des.qld.gov.au/pollution/greenhouse-gas-emissions)*)\** The site also fails to be accessible to older demographics as this site uses small text with no option to magnify it, hindering accessibility to the elderly, rendering the UI useless.

**Slide 12:** For those that can read it, key information isn’t easily available as the pages consist of large blocks of text, souring the UX for all users. *\*Image animation\** The UX is further destroyed by having the only charts at the very bottom of each page. However, the site does effectively use contrast, with black text on a white page.

**Slide 13:** Other solutions that present greenhouse gas emissions data include the United States Environmental Protection Agency (on the left) and the Queensland Government's own Climate Action website (on the right.) The US website establishes a clear hierarchy with bolded titles to separate sections. It also places charts at the top of the page for easy access to key information.

The Climate Action website primarily communicates its data through graphs *\*Image Animation\** which tend to be easy for individuals to comprehend.

**Data Story:**

**Slide 15:** The ‘State of the Environment’ website hosts all of the datasets required. *\*Edit Arrow running along left image pointing at each data set\** These datasets are active and all contain open data. They are licensed under Creative Commons 4.0 which allows us to freely share and adapt the data as long as we provide attribution.

**Slide 16:** I have selected the Sector Totals and the Agriculture totals datasets to analyse. The data in both datasets are measured in MtCO2e, or Million Tonnes of Carbon Dioxide Equivalent, and is downloadable in the .csv format allowing for easy transfer into the database. *\*Video Editing\** There are 8 sectors, one of which is the overall state total.

The sector totals dataset has the historic emissions from 1990 until 2018 for each sector in QLD. It also contains the 2018 data from every other state’s sector’s. The agriculture totals dataset has the historic emissions from 1990 until 2018 for each category of agricultural emissions in QLD. This dataset only has the total agriculture emissions for the other states in 2018 and doesn’t have further categorised data. These totals are also available in the sector totals dataset.

**Slide 17:** One thing to note, is that there are negative entries. This comes from LULUCF, which includes emissions reductions from activities such as tree planting. Queensland is the only state to not have a negative LULUCF.

**Data Dictionary:**

**Slide 18:** The proposed solution will have a database that consists of 5 tables, 4 of which are dedicated to emissions data, whilst the 5th is the Admins users table. The main emissions table will utilise a Composite key across the Year, StateID, SectorID, and Category ID fields, as this combination will always be unique. If it isn’t, there will have been a duplication error.

The emission field is the amount of CO2, measured in Million tonnes. The stateID, sectorID, and categoryID are all foreign keys that link to their respective tables and each have their own respective fields that are filled from the datasets (This is better shown on the next slide). This system allows for data reduction within the Emissions table. The Admins table consists of an Admin ID, a name, an email, an optional telephone number, and an encrypted password.

**Slide 19:** Here is the sample data for the 5 tables. Here you can see the connection between all of the foreign keys in the Emissions table and their own respective tables.

**Proposed Solutions**

**Slide 20: Proposed Solution**

**Slide 21:**  The web application will be built using HTML 5 and styled using CSS 3. A mySQL database will be used. Php will be used to connect the database and its data to the website as well as perform other functions. The data will be the previously analysed datasets from the DES website.

**Wireframes:**

**Slide 22-24:**  These wireframes represent an important step in the design phase, and allow for the implementation of useability principles, such as; accessibility, learnability & utility. They also allow for the design of UI and UX planning.

By keeping the text on each page to a minimum, it prevents the issue of unintended bias. By keeping the pages simple with a strong hierarchy, the user is drawn towards the actions buttons which allows them to easily access the data they want.

**Slide 25:**  The retrieval of data will be completed through algorithms. Connect.php connects the session to the database. State\_totals.php is for the state totals page. When the page is opened, it connects to the database, sets the SQL query, runs the query, then presents the data. If no data is retuned or the script cannot connect to the database, an error message is returned.

**Prototype:**

**Slide 26:**  **Prototype**

**Slide 27:** The homepage of climate facts informs the user about the site and gives clear instructions on use

**Slide 28:** The emissions by sector page allows users to find historic data ranging from 1990-2018 on the selected sector or totals for QLD

**Slide 29:**

**Slide 30:**  The stat totals page provides the 2018 year total for each state

**Slide 31:**  Using the login screen, admins are able to access the data upload portal.

**Slide 32:**  The upload button is disabled for data integrity until a file is uploaded.

**Slide 33:**  Once the file is uploaded, the admins can then submit the data.

**Slide 34:**

**Slide 35:**  Conclusion

**Slide 36:**

**Slide 37:**  Here I evaluated my criteria

**Slide 38:**  If there were any recommendations they were listed here

**Slide 40: Thank you**