DS Presentation

Team   : T&C Dev
Website : Zer0greenhouse

Introduction

About Me

Name : Pichaphop Sunthornjittanon (Top)

Faculty : Master of Data Science

www.linkedin.com/in/pichaphop

Our Team

Role & Contribution

Pichaphop Sunthornjittanon
Master of Data Science

Data Collection
Data Wrangling
Data Modelling
Data Visualisation
UX & UI

Yunzhe Li
Master of Cyber Security

Back End
Security Aspects
Database Administrator

Zhen Liu
Master of BIS

Design & Analysis

Changyi Li
Master of IT

Developer

Qinghui Fan
Master of IT

Developer

Project Overall

Tools that help people reduce greenhouse gas emissions

https://zerogreenhouse.tk./

Value Proposition

What values our project create ?

" People in the city of Melbourne produce a large amount of greenhouse gas per day. If you cannot imagine how much it is, I would say that Australia ranked the 7th largest emission per capita in the world and the number in the city of Melbourne was even above the national average. That's why we are here. We are here for the people in the city of Melbourne, especially young generations who want to see Melbourne a better place. We provide 3 innovative functions to help you reduce greenhouse gas, which are first, Green transport to help you plan your journey with the least emission. Second,Green Food to analyse your food consumption based on your food picture using our AI.Green home to guide you how to take actions at home with our interactive animation."

Data Science in the Project

All of the data science tasks that I involve in this project

Data Collection

Connect API and directly download CSV file to extract data.

Data Wrangling

Use Python to automatically clean, preprocess and integrate the data

Data Modelling

Develop deep learning model for image classification.

Data Visualisation

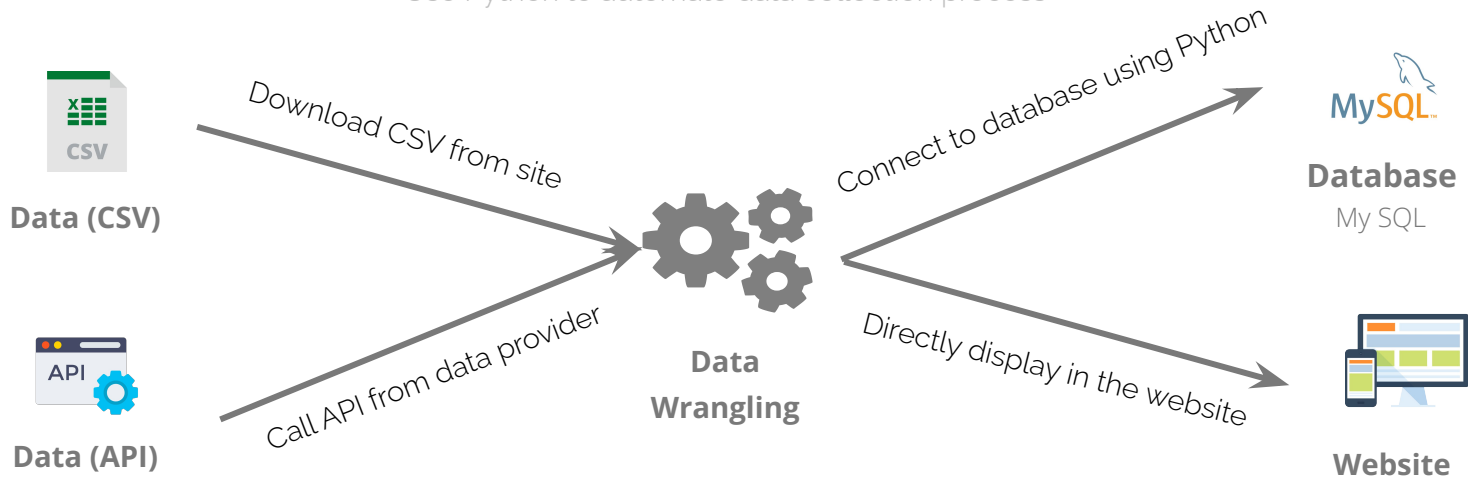Develop interactive visualisation and emission map

UX & UI

Use Wordpress and Anvil to design UX and UI

Data Collection

Use Python to automate data collection process

CSV

Data (CSV)

Download CSV from site

API

Data (API)

Call API from data provider

Data Wrangling

Connect to database using Python

MySQL™

Database

My SQL

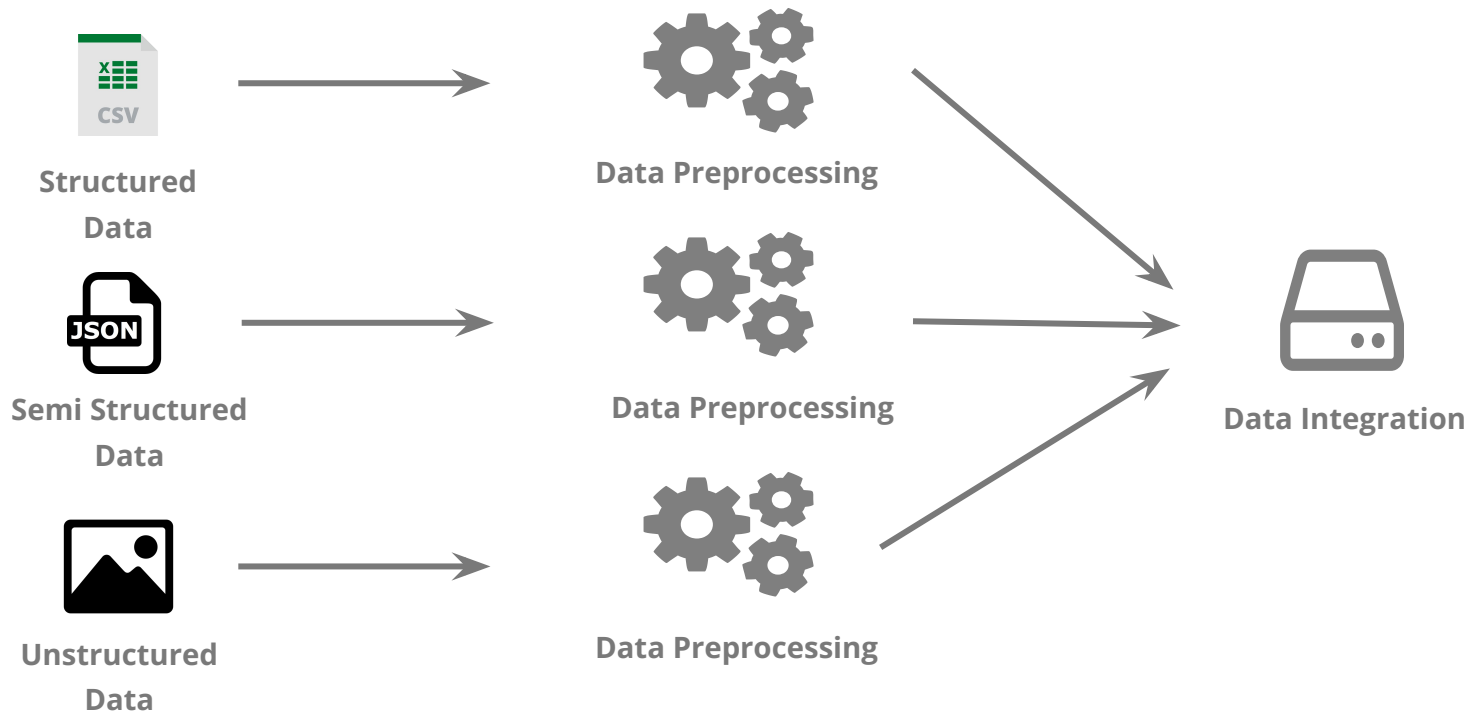Directly display in the website

Website

python™

Use Python Autoscript to automate the process including extracting, wrangling, updating the data and connecting to the database and website

Data Wrangling

Use Python to preprocess and integrate different types of data

CSV

Structured Data

JSON

Semi Structured Data

Unstructured Data

Data Preprocessing

Data Preprocessing

Data Preprocessing

Data Integration

Data Modelling

Use deep learning for image classification model for Green Food feature
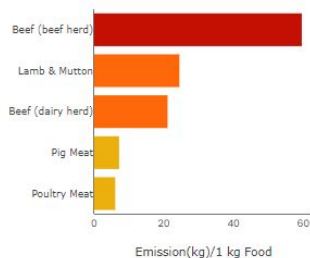
Input Your Food Picture

⬆ 1 FILE SELECTED

Meat

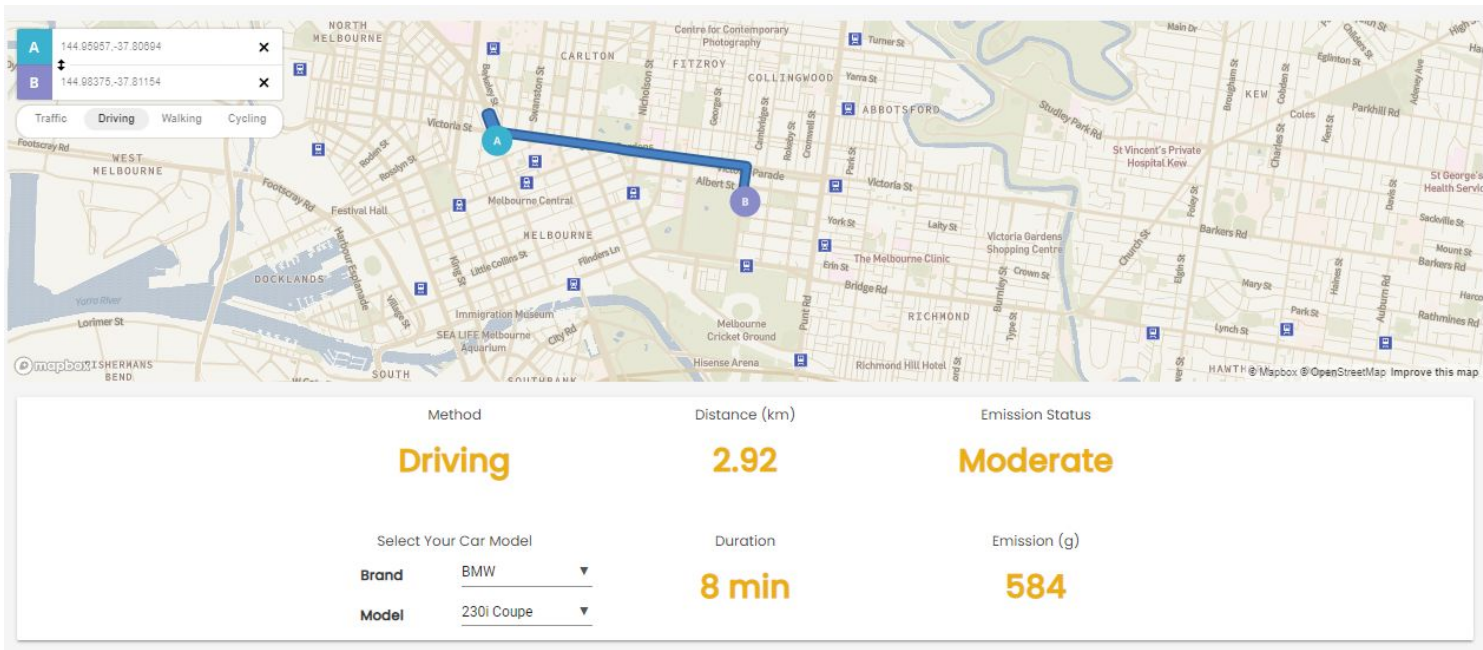### Moderate – Very High Emission

Emission by Product

Analysis & Suggestion

- Producing meets yields moderate to very high emission depending on meet types.

- Beef(beef herd) produces the highest emission (59.6 kgCO2 / kg beef), which is 2 times higher than the lamb&mutton,the second highest emission (24.5 kgCO2 / kg lamb).

- Poultry Meat yields the least emission at 6.1 kgCO2/ kg poultry meat , which is around 10 times less than beef does.

- Suggestion to reduce emission - You can reduce the amount of beef consumption and consider alternative meats, which are pig/poultry meat or fish (5.1 kgCO2 / kg fish)

Data Visualisation

Visualise emission map

Method	Distance (km)	Emission Status
Driving	**2.92**	**Moderate**

Select Your Car Model		Duration	Emission (g)
Brand	BMW ▼	**8 min**	**584**
Model	230i Coupe ▼		

UX & UI

Use Anvil and WordPress with html, css and javascript language to design the website

HTML, CSS, Javascript

WordPress

Anvil

Zerogreenhouse

Home   Green Actions ⌄   DailyCheck   Environment ⌄   Melbourne

Reduce Greenhouse Gas For The Better Melbourne

Are you young generations who want to see the better Melbourne ?, Act Now

Green Transport
Act now

Green Food
Act now

Green Home
Act now

Challenges

There are several challenges

Variety of Data

We need to deal with multiple data sources with different format (Image, JSON, CSV)

Limited Resources

We have limited time, credit and data, To train more accurate models, we need more data, time and computation capacities

Summary

What I have learned

Soft skills and working in agile environment

Deployment of ML and Data science techniques

Data Management and how to automate the process

Q & A

I hope you guys enjoyed it!