T1A3: Terminal Application.

Package Delivery Application.

GitHub Repository Link: GitHub Repository

Application Scope:

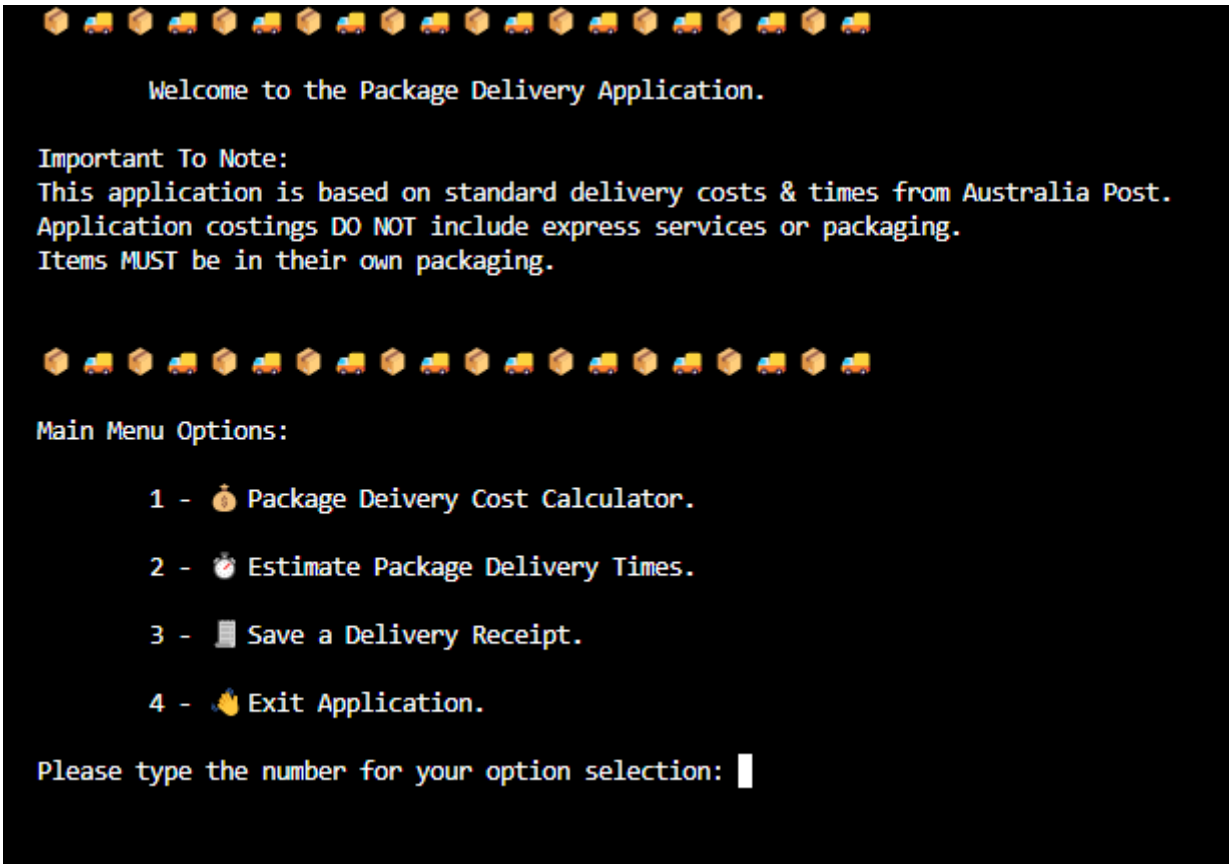
This Package Delivery Application is to provide users an estimated delivery cost and delivery time for any items they are wanting to send within Australia based on their inputs of the package dimensions and weight. Should the user decide to go ahead with the quoted delivery, the application will generate a job delivery ticket number. This ticket number can also be used by the user to save a delivery receipt with all the delivery job details for future reference.

Application Feature Outline:

Main Menu: Description - When users run the application the first area to be displayed is the Main Menu. This is where users can choose one of the features to use. There are 4 options: Package Delivery Cost Calculator, Estimate Package Delivery Times, Save a Delivery Receipt and Exit Application.

Logic - The main menu logic is located in the main.py file. When users enter their choice number for the feature they want to use, it will then call the corresponding function imported from the file location. Entering the following numbers will call the following functions:

- Number 1 --> will call the 'package_cost' function, located in the 'delivery_cost.py' file.
- Number 2 --> will call the 'delivery_time' function, located in the 'delivery_time.py' file.
- Number 3 --> will call the 'delivery_receipt' function, located in the 'delivery_receipt.py' file.
- Number 4 --> will exit the application. Main Menu Image:



Feature One - ***Package Delivery Cost Calculator:*** Description - The Package Delivery Cost Calculator will estimate a delivery charge based on a number of user entered data inputs. This feature has been based on the current 2024 Australia Post Parcel Charges for the standard parcel delivery service only. These can be viewed from this pdf: Aust Post Parcel Charges

The user inputs are:

- Sender name & contact number.
- Sender postcode.
- Receiver name & address.
- Receiver postcode.
- Package dimensions of length, width and height. Entered in centremetres.
- Package weight. Entered in kilograms.

From the postcodes, dimensions and weight inputs a package delivery cost will be calculated. These will all be displayed to the user, who can choose to book the delivery job or not. If user chooses to book the delivery job, a delvery ticket number will be displayed for their future reference.

```
Please type the number for your option selection: 1
Please enter the senders name: Darren Small
Please enter the senders contact number: 0449760334
Please enter the postcode sending the package from: 2763
Please enter the receivers name: Test Receiver
Please enter the receivers street address:  159B testing street, Hobart, TAS
Please enter the receivers postcode: 7000
Please enter the package length. Length in centimetres is: 33
Please enter the package width. Width in centimetres is: 25
Please enter the package height. Height in centimetres is: 18
Please enter the actual weight of the package. Weight in kilograms is: 15

    Here are your package delivery details based on your entries:

        Senders Name: Darren Small

        Senders Contact Number: 0449760334

        Senders Postcode: 2763

        Receivers Name: Test Receiver

        Receivers Address: 159B testing street, Hobart, TAS

        Receivers Postcode: 7000

        Package Calculated Weight: 15

        Package Delivery Cost: 57.45


Would you like to proceed and book this package delivery ? (Y for yes or N for no): Y
Your delivery has been booked. Your ticket number is: 10840. Please record this ticket number.
```

Logic - In the 'deliver_cost.py' file, is the package_cost function. From the packages folder, the delivery_cost file is importing the following functions and their uses:

- post_zone from the postal_zones.py file = this uses the user postcodes entered to find & return a zone number the postcode belongs to.
- cubic_weight from the volumetric_weight.py file = this calculates the cubic weight of the package based on the user inputs of length, width and height.
- freight_rate from the freight_rates.py file = based on the package weight to use, this returns a delivery rate for 4 different levels of package weight. The rate levels are: less than 0.5kg, between 0.5kg & 1kg, between 1kg & 3kg and then above 3kg.
- zone_charge from the zone_surcharge.py file = should the weight to use be greater than 5kg, this file has a nested list to find the extra surcharge to be used based on the zone number returned in the post_zone function.

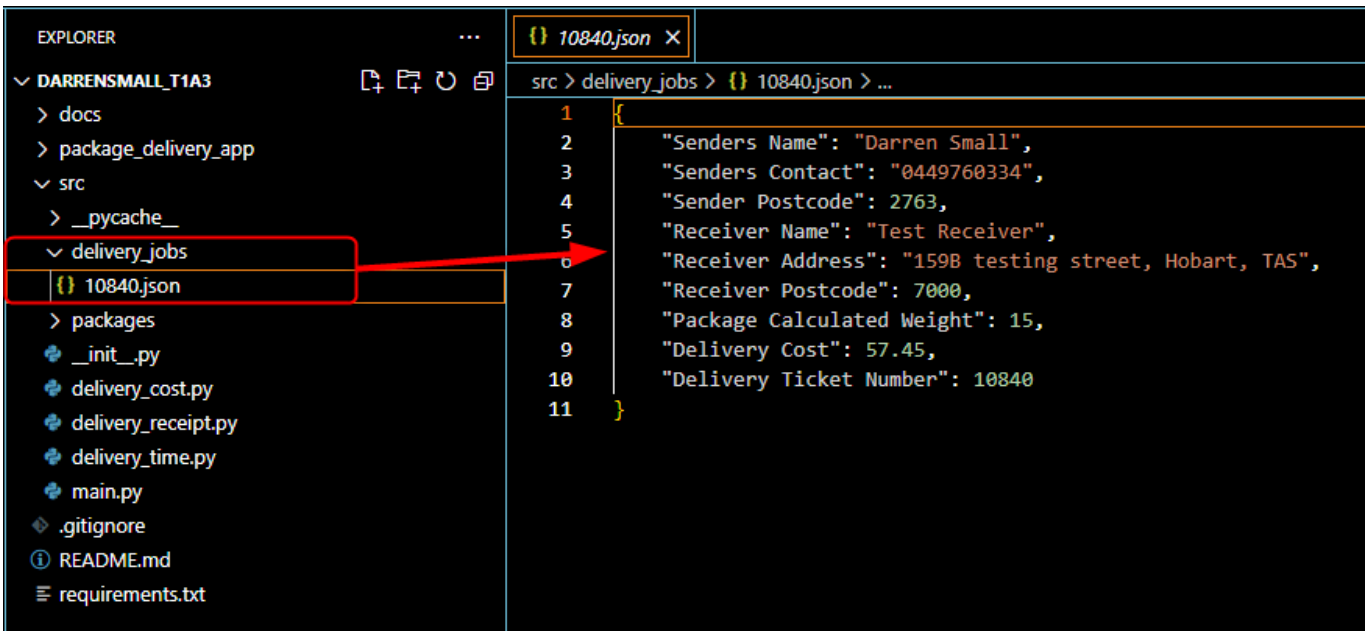
Based on the user dimensions inputed, a cubic weight will be calculated. The greater of the two weights (weight entered or cubic weight), will be used as the package weight for the delivery cost. Their are 4 standard package weight rates upto 5kgs.If the package weight is above 5kg, then there is a extra surcharge rate for every extra 1kg (or part thereof) based on the two postcode zones. All the user inputs of sender name & contact, receiver name & address, postcodes, the package weight used and the delivery cost will be saved to a dictionary called delivery_job.

⚠ NOTE!:

Australia Post DO NOT accept packages based on 3 values:

1. A maximum package weight of 22kg.
2. A maximum any dimension of 105cm.
3. A maximum cubic dimension of 0.25 cubic metres. If any one of these are entered by user of calculated, a warning will display advising the user to contact Aust Post for further instructions and return them to the main menu.

Lastly the user is asked if they would like to book this delivery job by a 'Y or N' response. If 'N' the application will return to the main menu. If 'Y' a random number will be generated, this will be assigned as the job ticket number, added to the delivery_job dictionary, then written to a json file and saved as the ticket number in the delivery_jobs folder. Here is an example:



Feature Two - ***Estimate Package Delivery Times*** Description - This feature for Estimate Package Delivery Times will ask the user to enter 2 postcode numbers, the senders postcode and the receivers postcode. Based on the 2 postcodes entered and the the postal zones they belong to, the application will display an estimated delivery time in number of days to the user. This feature has been based on the estimates from the Australia Post parcel post delivery estimator grid 2023. These can be viewed from this pdf:
Aust Post Parcel Delivery Estimates

Logic -