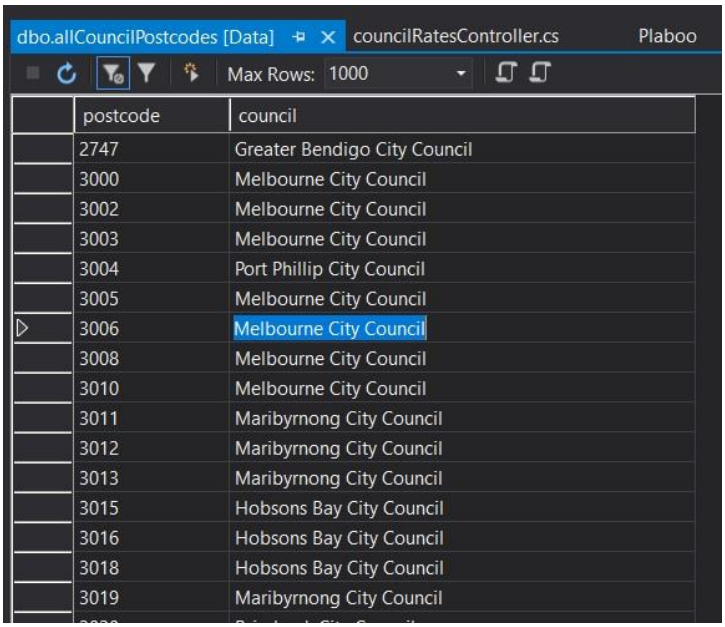
Database Details

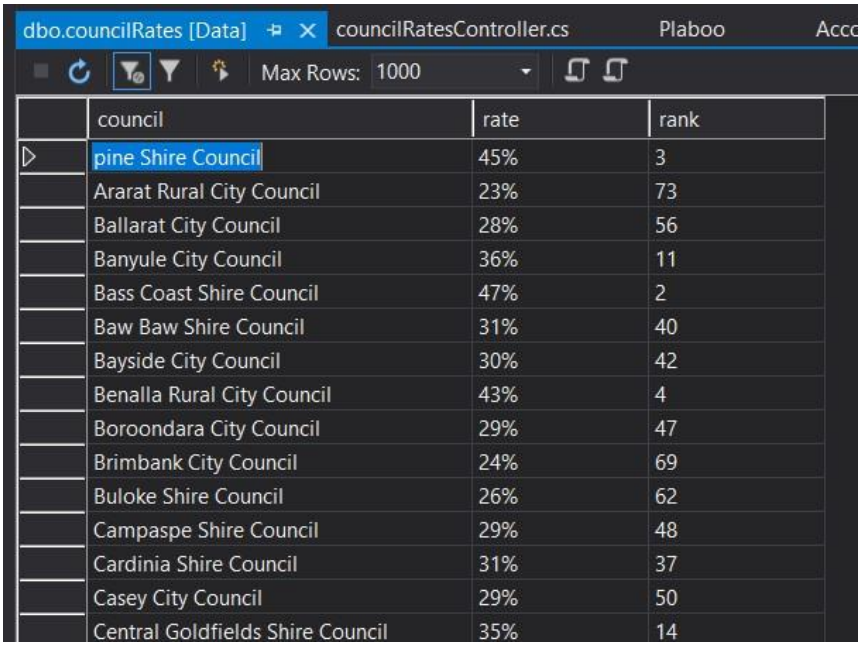
We have used Microsoft SQL Server Studio for storing our data. This is a Relational database management system. Mainly we created 4 tables in our database for this iteration:

1. **allCouncilPostcode:** This table has all the properties needed to store the details of the postcodes of all councils in Melbourne. It has a one-to-many relationship between the council and the postcodes. This table has been used to map the relationship of the postcode entered by the user and the council to which it belongs. 'Postcode' here is the primary key. This table has more than 800 entries. The structure can be found below:



postcode	council
2747	Greater Bendigo City Council
3000	Melbourne City Council
3002	Melbourne City Council
3003	Melbourne City Council
3004	Port Phillip City Council
3005	Melbourne City Council
3006	Melbourne City Council
3008	Melbourne City Council
3010	Melbourne City Council
3011	Maribyrnong City Council
3012	Maribyrnong City Council
3013	Maribyrnong City Council
3015	Hobsons Bay City Council
3016	Hobsons Bay City Council
3018	Hobsons Bay City Council
3019	Maribyrnong City Council

2. **councilRate:** This table has the properties that store the ranking, the recycling rate and the name of the council. This table has been used to show the ranking and the recycling rate of the council to which the user postcode belongs. This has 79 entries (number of councils in Melbourne). The structure can be found below:



council	rate	rank
pine Shire Council	45%	3
Ararat Rural City Council	23%	73
Ballarat City Council	28%	56
Banyule City Council	36%	11
Bass Coast Shire Council	47%	2
Baw Baw Shire Council	31%	40
Bayside City Council	30%	42
Benalla Rural City Council	43%	4
Boroondara City Council	29%	47
Brimbank City Council	24%	69
Buloke Shire Council	26%	62
Campaspe Shire Council	29%	48
Cardinia Shire Council	31%	37
Casey City Council	29%	50
Central Goldfields Shire Council	35%	14

3. **Plastic:** This table stores the properties of all the plastic items. This table has been mainly used for our 'Alternatives' feature where we are showing the alternatives to the plastic items adolescents use in their daily life. The 'HarmMeasure' has been developed my mathematical model in python. The structure is as follows:

dbo.Plastics [Data] | councilRatesController.cs | Plaboo | AccountController.cs | HomeController.cs | Web.config | Index.cshtml

Max Rows: 1000

Plasticid	Description	Alternative	Reason	Image	Harmindex	Classification	HarmMeasure
1	Cups	Stainless steel c...	Most of the pla...	/Content/Image...	4	Kitchen	Using 2 plastic cups equals driving a car for 1 km
2	Cooking utensils	Wood or stainle...	Plastic cooking ...	/Content/Image...	4	Kitchen	Using 1 spatula equals driving a car for 3 kms
3	Cling wrap	Beeswax Wraps,...	The chemicals a...	/Content/Image...	5	Kitchen	Using 500 meters cling wrap equals driving a car for 3...
4	Disposable sha...	All-metal razors...	Around 2 billio...	/Content/Image...	5	Bathroom	Using 1 disposable shaver equals driving a car for 1 km
5	Food storage	Stainless steel c...	Food storage is ...	/Content/Image...	4	Kitchen	Using 1 Food storage container equals driving a car f...
6	Hard hat	V-Gard green H...	It is not resistan...	/Content/Image...	4	Travel	Using 1 hard hat equals driving a car for 19 kms

4. **RecyclingCentres:** This table stores the attributes of all waste management centres in Victoria. It stores the contact details of these centres and stores the important attributes like the latitude and longitude coordinates of these centres as well so as to show them on maps.

Name	Latitude	Longitude	Suburb	Postcode	Address	DetailedAddress	Contact
Ace Waste	-38.02062988	145.192504900...	Dandenong So...	3175	64-68 Ordish R...	64 Ordish Rd, D...	(03) 8784 4200
Alexandra Land...	-36.078657	147.1314385	Alexandra	3714	119 Mount Plea...	119 Mount Plea...	(03) 5772 0333
Altona North La...	-37.834992	144.8383135	Altona North	3025	55 McArthurs R...	55 Mcarthurs R...	(03) 9399 2668
Alvie Landfill	-38.250712	143.521214999...	Alvie	3249	Corangamite La...	977 Corangamit...	(03) 5232 9400
Anglesea Resou...	-38.3854775	144.2014095	Anglesea	3230	50 Coalmine Ro...	50 Coalmine Ro...	(03) 5263 2978
Ararat Transfer ...	-37.2972165	142.9299145	Ararat	3377	Surface Hill Road	Surface Hill Rd, ...	(03) 5355 0200
Ardmona Waste...	-36.4028835	145.3134105	Ardmona	3629	Corner Midland...	Corner of the M...	(03) 5825 2214
Avenel Waste Tr...	-36.8794815	145.2428635	Avenel	3664	145 Monea Road	145 Monea Roa...	1800 065 993

The data for the above tables have been collected from different open datasets available on the government websites. This data was first **cleaned, wrangled and transformed** and then imported in our database. Further details on the wrangling and cleaning process have been elaborated in a **separate document** called '**Data Plan'**. The open dataset details can be found below:

Data Plan

1. Waste management facilities dataset EDA, it shows there are some duplicate records and the detail information like street name and house number are unclear.
2. Filter the Victoria state data, it shows the suburb attribute has some wrong records.
3. Combine the postcode dataset and waste management facilities datasets through the suburb. When comes to multiple postcodes from the same suburb, manually check those records.
4. Waste facilities statue check. With the help of waste facilities statue dataset, it recorded some closed waste facilities and due to close facilities. Could help to reduce and update the raw dataset.
5. Remove duplicated records. The duplicated records may be formatted as similar name, address. Using the difflib library to detect the similar name of each location.
6. Add detail information of each record. Using google map API, from google place to obtain the phone and the full address, setting the coordinator as the searching key.

Due to the quality of the dataset, this process cannot match the raw dataset records. For these unsearchable records, manually check and add value to the table.

7. Revise the precessed data, check again if there would be misrecorded information and duplicated information.

Open Data Details - Iteration 3									
index	Names	Physical access used	Frequency of source updates	Frequency of ITERATION System updates	Granularity	Copyright details	Implementation	Comments	Links
1	Waste Management Facility	csv	Dynamic, as each year data publisher updates the dataset	Yearly	Latitude/Longitde; state,suburb and address; onwership; feature	Geoscience Australia	Implement the loction informaion into map for user to browse the nearest waste collection point	Data cleanerse and validation check	https://data.gov.au/dataset/ds-ga-a66ac3ca-5830-594b-e044-00144fdd4fa6/details?q=waste%20point
2	Waste management Facility status	csv	Dynamic, as each year data publisher updates the dataset	Yearly	name,state,suburb and address, status	EPA Victoria	Check the statue of the waste	This dataste coverage cant match the original dataset, but still can help	https://www.epa.vic.gov.au/for-community/how-to/find-landfill-recycling-centre
3	Postcode	txt	Daily	Monthly	Post code	geonames.org (should give credit to GeoNames when using data or web services with a link or another reference to GeoNames)	Postcode combination with waste facilities suburb	More data wrangling match the WMF datasets	https://www.geonames.org/export/