

COS30045 – Data Visualization

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Word Count:- 4369

Visualization Project Process Book

Semester 01 - 2020

URL of project website :- <https://mercury.swin.edu.au/cos30045/s101243288/project/index.html>

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1.Introduction

1.1. Background and Motivation

"The environment is where we all meet; where we all have a mutual interest; it is the one thing all of us share. " - Lady Bird Johnson

Generation of waste is a very serious global concern that needs to be addressed properly. The amount of waste generated annually is increasing proportionately to the increasing global population and living standards. Each and every individual generates waste everyday and the management of this generated waste becoming a huge issue. The impact the waste has on the environment is immense and it is a major polluter of sensitive environment aspects such as forests, waterways, rivers, oceans and animal habitats. According to the researches, world population generates about 3.5 million tonnes of waste per day. Unfortunately only a very small percentage of this waste gets managed properly and the majority ends up in landfills. In order for the human kind to have a future, we need to protect our environment by reducing the pollution occurs as a result of human activities. Reducing emissions and waste generation are key steps in securing a better future for all of us.

"Man did not weave the web of life, he is merely a strand in it. Whatever he does to the web, he does to himself" - Chief Seattle

In order to give the audience the impact and the fate of generated waste, I am creating this visualisation that demonstrate the key areas of generation and the management of waste.

1.2. Project Objectives

"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it is the only thing that ever has. " - Margaret Mead

The objectives of this visualisation project is to create an illustration of Australia's Waste generation and management in order to give the general public and the audience an idea of the issues we are dealing with in regards to waste and to generate a sense of individual responsibility to reduce contribution in future. Originally I was planning to

visualise waste statistics of the G20 countries but due to the issues with availability of proper statistics for some countries, I re evaluated and reduced the scope of the visualisation to focus on Australia.

“Australians produce 540kg of household waste per person, each year. That’s more than 10kg for every single person, every single week. In the year to June 2017 Australia generated an estimated 67million tonnes of waste. Only 37% of this was recycled. It’s estimated about 130000 tonnes of Australian plastic ends up in our waterways and oceans each year” – cleanup.org.au

1.3. Project Schedule

- 22nd May – 24th May 2020 :- Researching and preparing the dataset
- 25th May – 2nd of June 2020 :- Initial design phase with trial graphs and correcting data set
- 5th of June – 8th of June 2020 :- Finalising the design and website
- 9th of June – 14th of June 2020 :- Preparing the report and final touch ups

2.Data

2.1. Data Source

This visualisation is prepared using the data published in the National Waste Report 2018 prepared by Randell Environmental Consulting for the Department of the Environment and Energy.

URL of the report:-

<https://www.environment.gov.au/system/files/resources/7381c1de-31d0-429b-912c-91a6dbc83af7/files/national-waste-report-2018.pdf>

The complete dataset can be found in table form inside the appendix A of the report. The data is in the form of categorical data where it is grouped by various attributes such as material category, stream, state inside separate tables. Each table represent a separate set of data. Eg:- break down of total waste generation by material category / stream.

2.2. Data Processing

For this visualisation I only needed the data on the total core waste generation and management statistics, total food waste management data and total organic waste management data. Due to the extent of the original report it had various types of analytical data that is not useful for this project. I created 3 separate excel file containing the derived data set. Three files were used as it was easy to manage later in the design phase with Tableau and Datawrapper softwares.

Separate work sheets were created for Australian overall statistic, State statistics, Waste generation by stream, Waste generation by material category, generation of organic waste and generation of food waste. There were some unexplained inconsistencies in the original report where it reported two different values as the total amount of waste generated. I also had to carefully record the unit of measurement related to each dataset as some used millions of tonnes as others used kilo tonnes. As part of preparing the dataset, I calculated the percentages of data vs total quantity to use as appropriate in some charts.

Once the datasets were ready, I loaded them into the Tableau and Datawrapper softwares to create the visualisations.

3.Requirements

3.1 Must-Have Features

- Australian map with the data of core waste generation and management of each state with correctly labelled states/territories.
- Bar chart of individual statistics of each state/territory in regards to core waste management.
- Bubble chart displaying management of core waste by material category.
- Doughnut chart in the home page with total amount of waste collected for each stream with correct label for each category
- Bar chart with the management methods of collected food waste with clear labels containing percentage and total in correct measurement unit
- Bar charts with organic waste generation grouped by the stream and material category with correct labels and measurements
- Legends of each chart

3.2 Optional Features

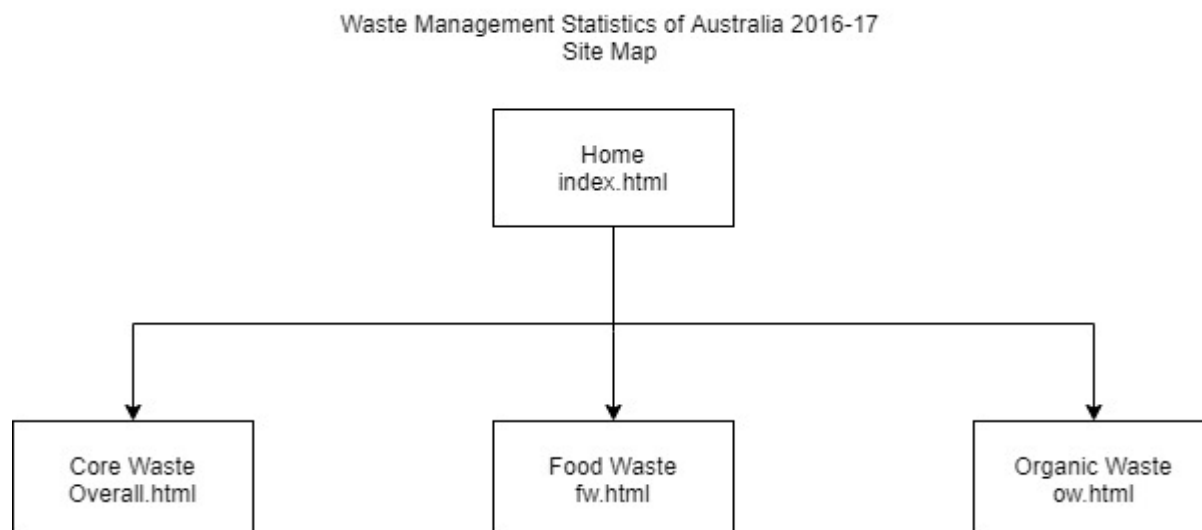
- Tooltip to appear with the relevant data when the user hovers over with the mouse pointer
- When the user clicks on each state/territory on the map, it will filter the relevant state/territory's statistics from the bar chart and display.
- User can click on bars/bubbles and highlight individual elements

4. Visualisation Design

This section contains screenshots of each web page and details of the visualisation web site.

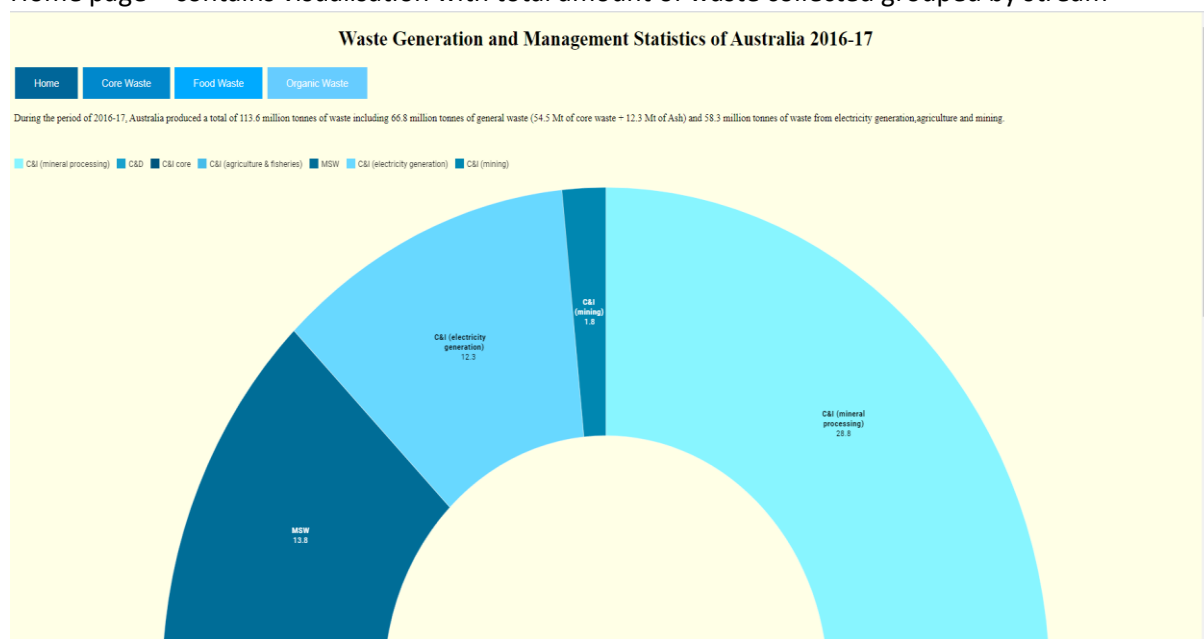
4.1 Site map

The site map of the website is as follows,

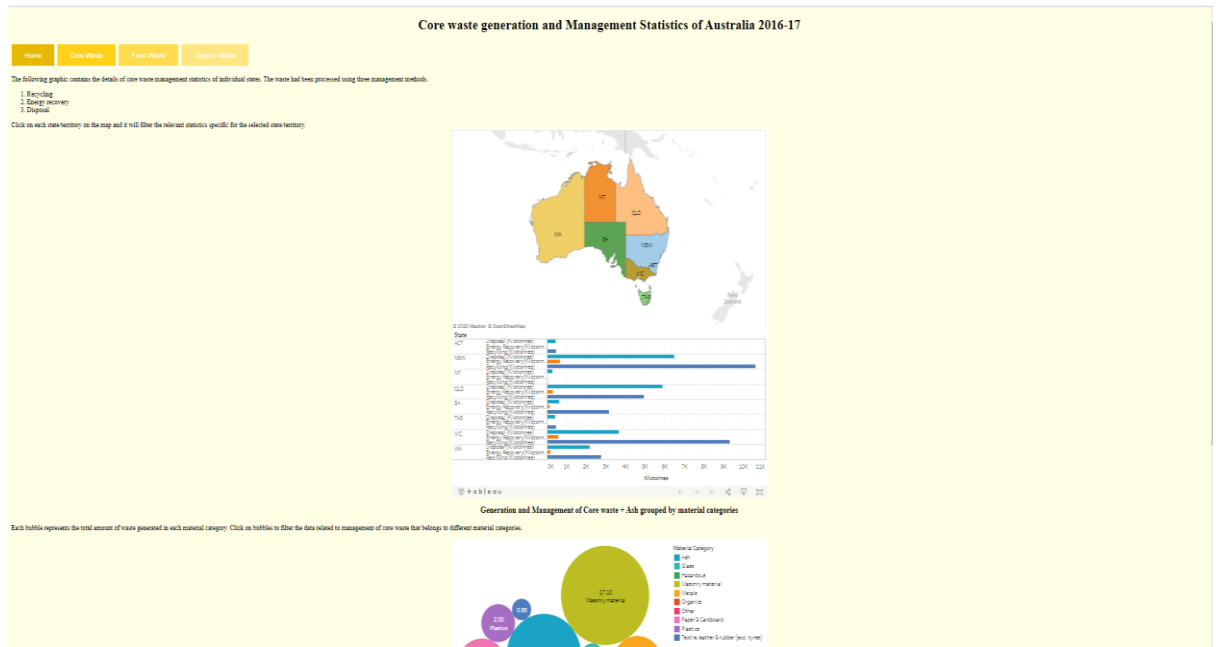


The website has 4 pages,

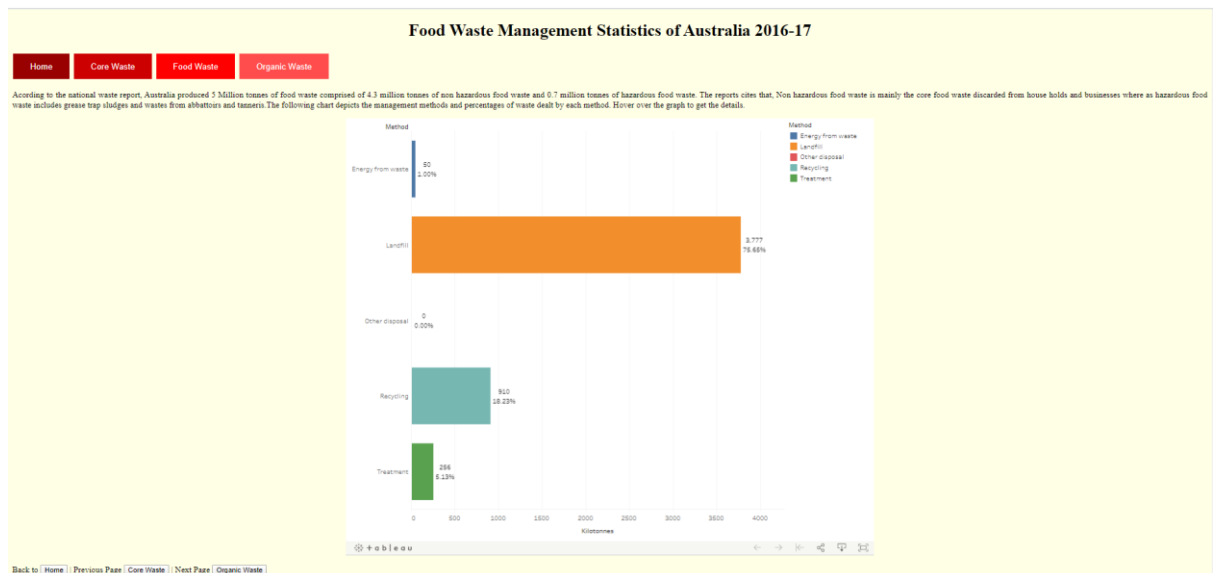
- Home page – contains visualisation with total amount of waste collected grouped by stream



- Core Waste page – Visualisation with Australian map and bubble chart containing individual statistics of each state/territory



- Food Waste – Details of the management of food waste



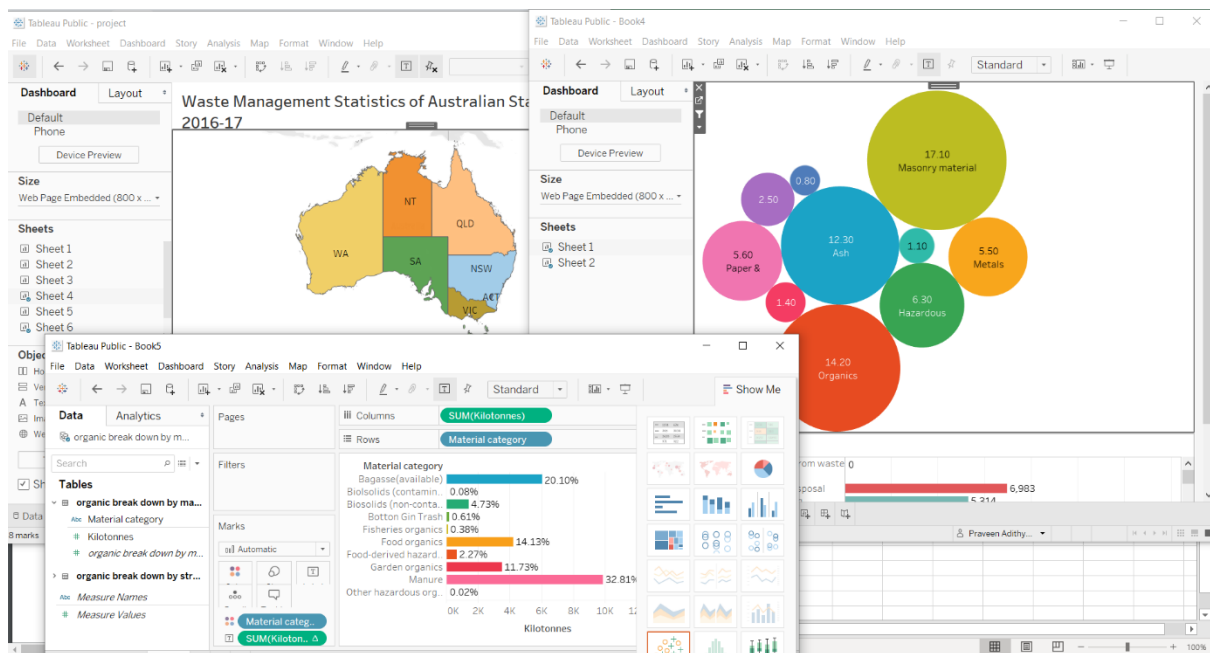
- Organic Waste – Management of organic waste



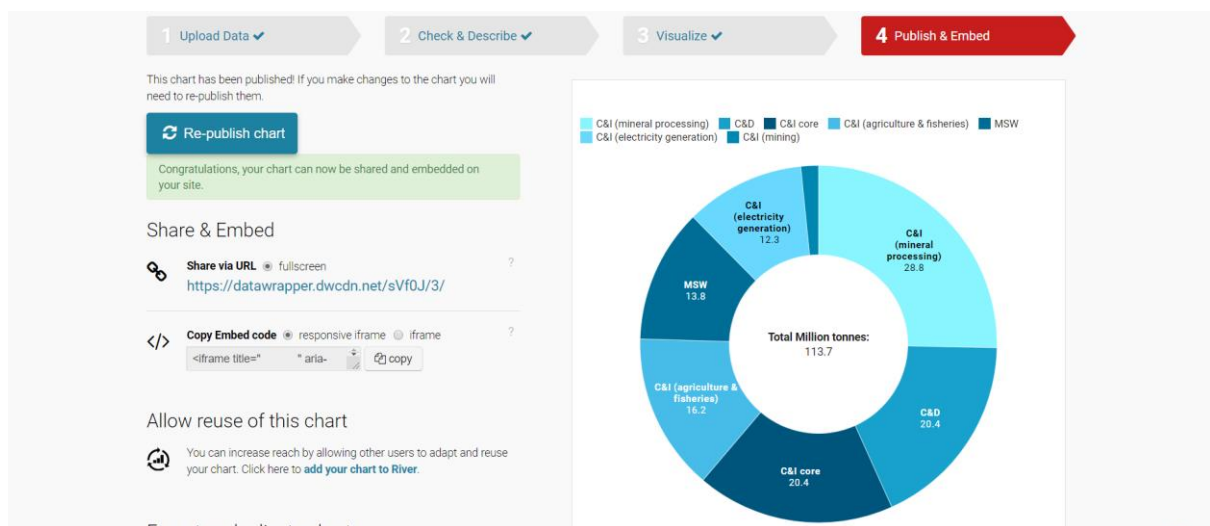
4.2 Designing phase

My original plan was to include waste management data of G20 countries on a world map using D3 and it was not possible due to inconsistencies of the available data and then I focussed on the Australian statistics after finding the national waste report. I changed from D3 to tableau and datawrapperr software as they offer much more flexibility with designing and easier than coding with D3. Also the interactions between different charts were possible because of tableau platform's capabilities. Following are some of the screenshots of the designing phase,

Creating the visualisations with tableau desktop application



Home page visualisation made with datawrapper



Selecting colours using W3 colour pallet to give a fading effect to the menu buttons and also for background colour of the website

Core waste generation and Management Statistics of Australia 2016-17

Home
Core Waste
Food Waste
Organic Waste

The following graphic contains the details of core waste management statistics of individual states. The waste had been processed

1. Recycling
2. Energy re
3. Disposal

Click on each state/territory.

HTML

CSS

JAVASCRIPT

MORE

Or Enter a Color:

Color value OK

Or Use HTML5:

Selected Color:

Black Text

Shadow

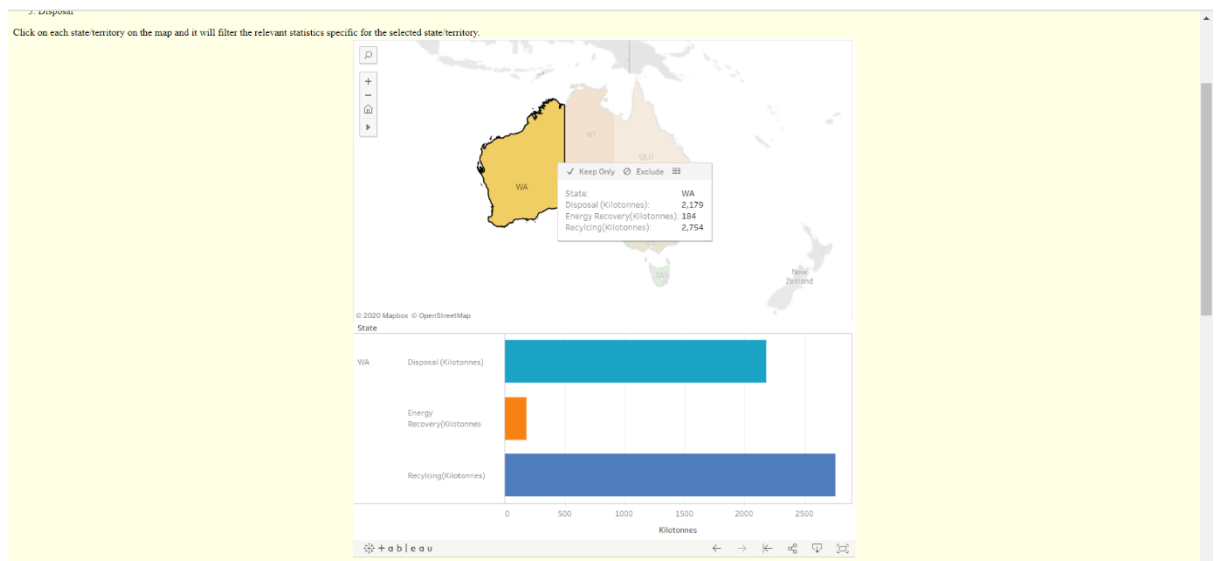
```

1  <meta charset="UTF-8"/>
2  <meta name="description" content="Data Visualisation Project"/>
3  <meta name="Keywords" content="HTML, CSS, JS"/>
4  <meta name="author" content="Praveen Waragoda 101243288"/>
5
6  <title> Waste Generation and Management Statistics of Australia 2017-18</title>
7
8  <link rel="stylesheet" type="text/css" href="world.css">
9
10 <script src="https://d3js.org/d3.v5.js"></script>
11 <script src="https://d3js.org/d3-geo-projection.v2.min.js"></script>
12 <script src="world.js"></script>
13
14 <!-- code for background color taken from https://www.vishchole.com/taas/taas_body.asp -->
15
16 <style>
17
18   body {
19     background-color: #ffff66;
20   }
21
22   .button1 {
23     background-color: #e6b800;
24     border: none;
25     color: white;
26     padding: 10px 30px;
27     text-align: center;
28     text-decoration: none;
29     display: inline-block;
30     font-size: 16px;
31     margin: 4px 2px;
32     cursor: pointer;
33   }
34

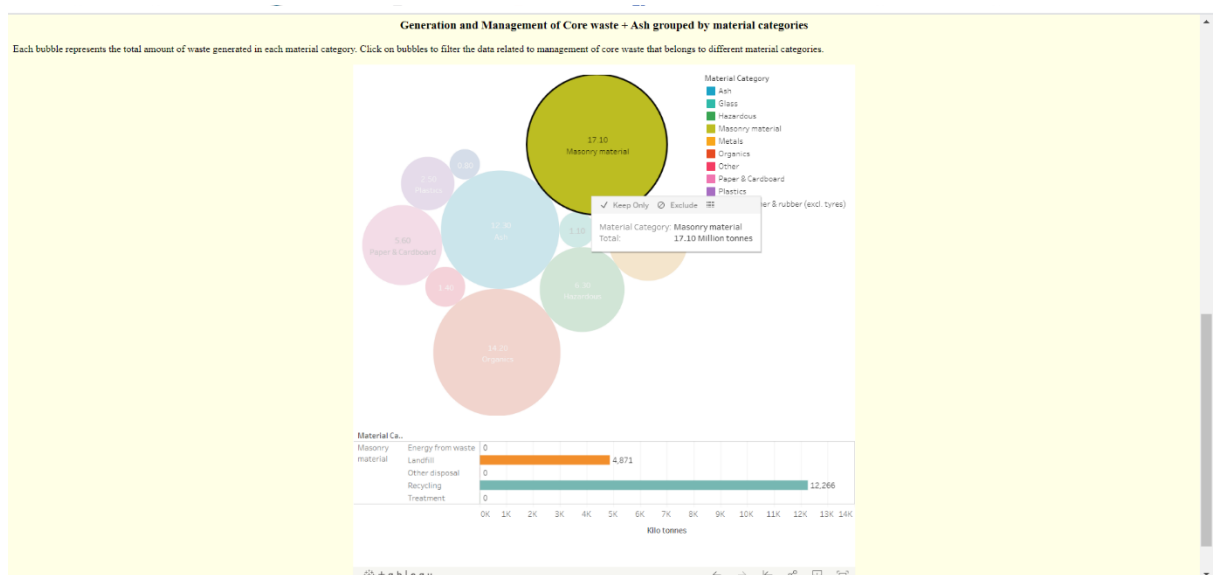
```

4.3 Interactive features of the visualisations

- Clicking on a state/territory on the Australian map will filter the relevant statistics from the bar chart below.

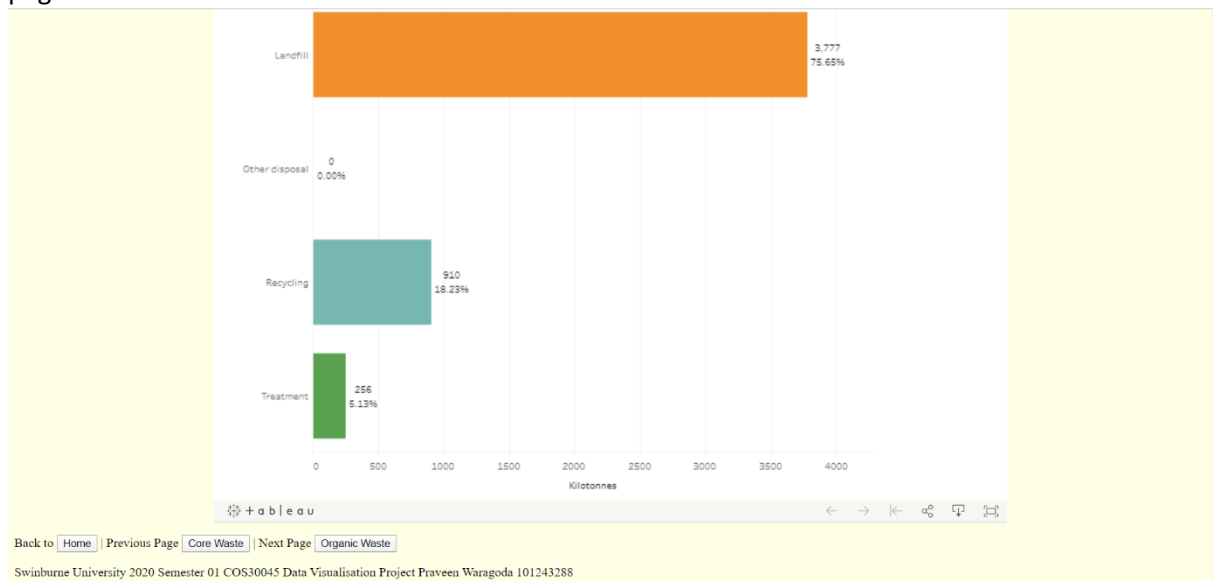


- Clicking on bubbles on the bubble chart in the core waste page will filter out the statistics from the bar chart.



- Tooltip appears on every visualisation when the user hovers over with mouse pointer.

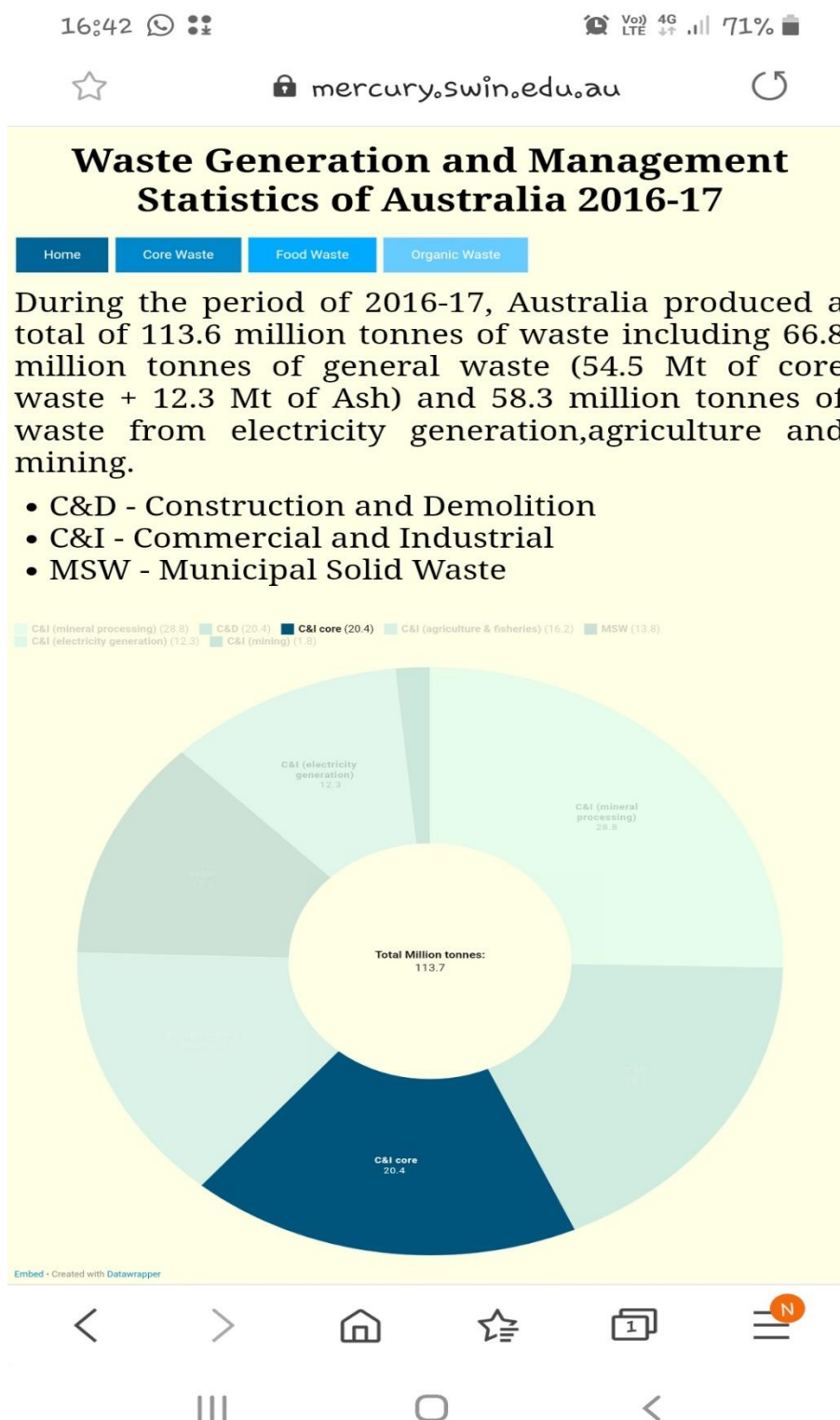
- Navigation buttons at the end of each page to make it easier for the user to switch between pages



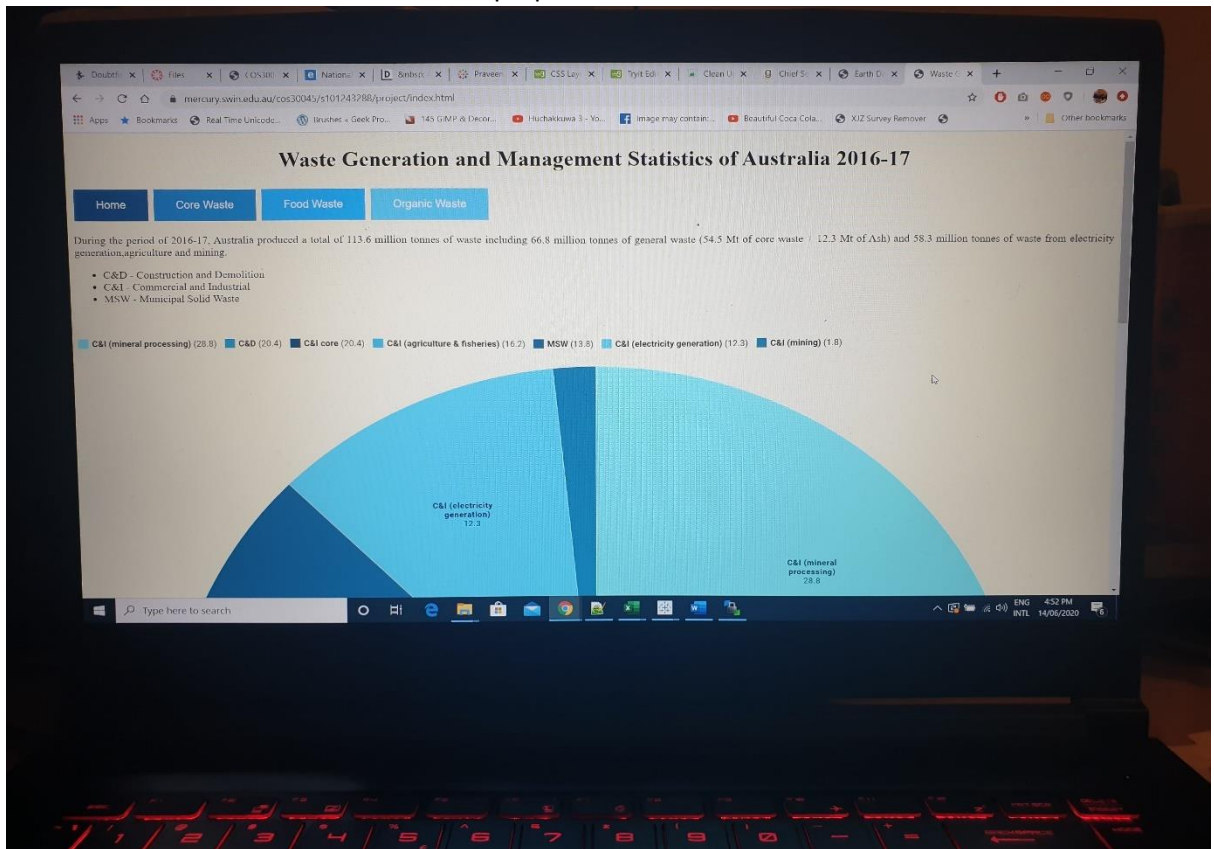
4.4 Usability and adaptability of the website

This webpage is adaptable to any screen size used by the audience. Following are images of screen testing using different sizes of screens.

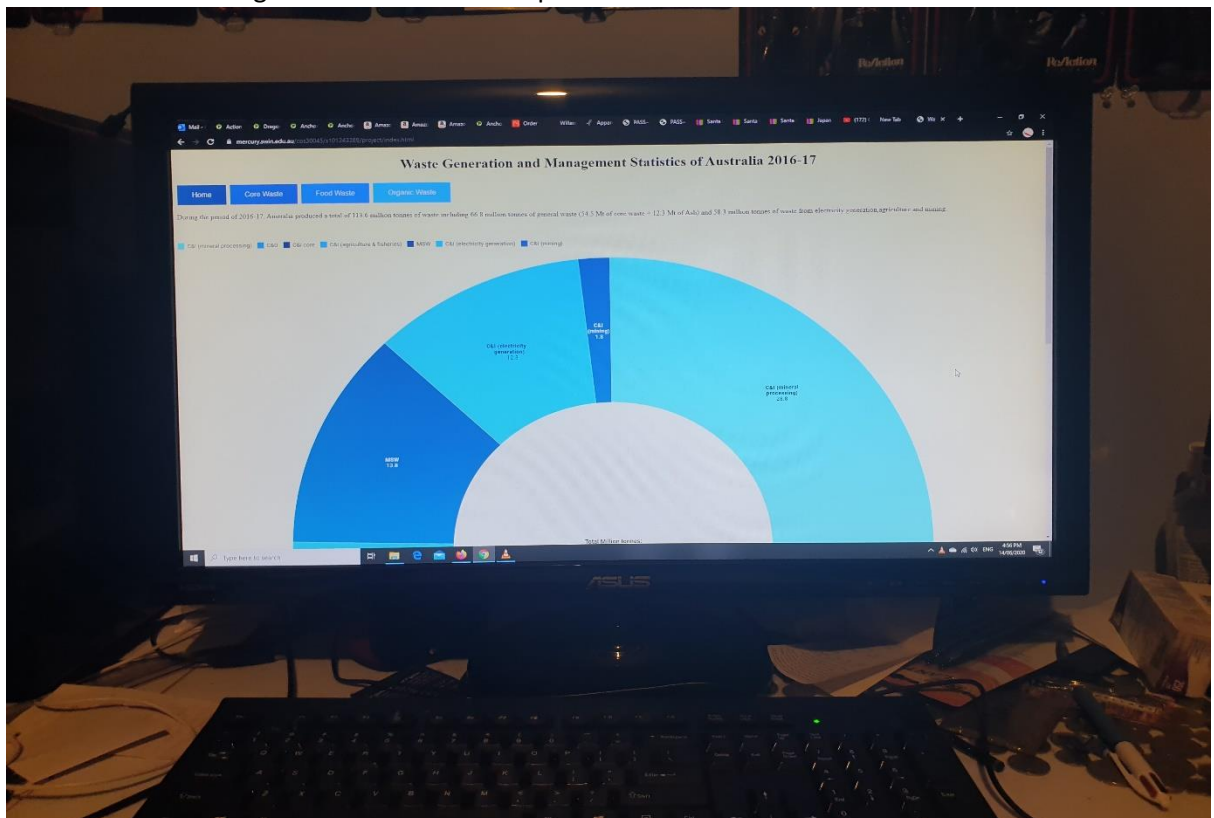
- Website rendered properly, fitting to the size of my mobile phone screen



- Website viewed from a standard 15.6" laptop screen



- Website viewed using a standard size desktop monitor



4.5. Justification of the design

After carefully reading through the national waste report and deriving the required data set for the project, my focus was on the selection of approaches for the visualisation that would be more successful in delivering the intended message to the audience.

For the Home page, I have used a doughnut chart with each part representing a stream of waste generation with labels of amount generated by each stream. The dataset used was quantitative and categorical data that contained a breakdown of the total collected waste for the year of 2016-17 and divided into each stream of waste generation. This chart is more eye catching with its visual elements and also the user can easily understand the data it represent. It highlights the relevant section when the user either clicks on it or hovers over and also highlights the relevant part in the legend on top of chart. Differently sized slices of the chart gives an exact idea of how much of a percentage a given stream represents in the total amount of collected waste. The meanings of the technical terms C&I (Commercial and Industrial), C&D (Construction and Demolition) and MSW (Municipal Solid Waste) are presented as a list before the infographic so that the reader will be familiarised with the terms thus would not get confused or be in the need of looking else where to find the meaning.

In the 2nd web page, named “Core Waste”, presents the user with the waste management statistics of the Australian states/territories. Data set was predominantly quantitative and also categorical and was related to different geographical areas. Choropleth design approach was the most suitable design for this particular dataset which was ideal to tie data from different tables together on a same visualisation. Instead of making the traditional choropleth of Australian map with data written on the map, I only included the state/territory name on the map and I created the tooltip to have all the relevant information regarding each state/territory and it would appear when the mouse pointer was hovered over the map. To make visualisation interactive, I used the “filtering” feature offered by Tableau software to link the Australian map with the horizontal side-by-side bar chart with statistics related to each state/territory so that when the user clicks on a particular area of the map, that section would be highlighted and the bar chart underneath would only show the data related to the selected state/territory.

There is a second chart on the core waste page that contains a bubble chart linked with a bar chart together. This contains the data set related to management of core waste and ash by material category and the final fate of the waste collected. The size of each bubble is in relation to the percentage of the particular material category represent in the total collection of waste. I selected to present this data as a bubble chart as it more pleasant to look at than a traditional chart and contains more colours. Each bubble has labels with the data it represents and the user can click on the bubble and it would filter out sections of the bar chart below.

3rd webpage named as “Food Waste”, contains the data related to the management methods of food waste. It represented quantitative data on how the food waste was managed. I decided to use a horizontal bar chart for the visualisation as it is simple yet a straight forward method to illustrate the data. The user easily can understand the idea and also the data is presented with labels on every bar so that its easier to read. Separate colour was assigned to each bar representing each method of management.

4th webpage named “Organic Food”, contains the details of total organic waste collected grouped by different streams and material category. It was also quantitative data with percentages and I decided to use bar charts to represent the data as it was the most suitable way to go as the data was very simple and easy to understand. Each bar was given different colours representing different material category and stream.

5.Conclusion

This project was undertaken by me as part of COS30045 Data Visualisation subject, to make a visualisation on the topic of waste generation and the impact it has on our environment. Its purpose is to educate the reader on the importance of the proper management of waste and to increase awareness of one's individual responsibility to reduce the waste produced daily. This report focuses on the Australian aspect of waste management and the dataset used is originated from the National Waste Report 2018 prepared by Randell Environmental Consulting for the Department of the Environment and Energy Australia, which has data on the waste collected in the year of 2016-17 period.

My visualisations were able to properly illustrate the dataset in a meaningful way giving the reader all the relevant information and statistics to make informed decisions on their individual life styles which would lead to changes to individual waste production that would eventually result in less waste production.

I was able to identify and learn about different software tools available to visualise data in addition to the programming methods such as D3 that I learnt through out the semester. I found it way more easier to use the Tableau to produce artistic and colourful visualisations than using D3 which heavily dependant on the programming ability and prone to lots of errors and take more time to correct. Since I am not a huge coding enthusiast, the software tools helped me to successfully complete thie project.

On a personal level, I also learnt about our responsibility to protect the environment and the individual impact we all have on it with our day to day activities. It was an eye opening journey while researching on the topic and I was able to learn of the impact human kind has on the future of our planet.

6.References

- HTML and CSS styling guide at W3 Schools - <https://www.w3schools.com/default.asp>
- National Waste Report 2018 - <https://www.environment.gov.au/system/files/resources/7381c1de-31d0-429b-912c-91a6dbc83af7/files/national-waste-report-2018.pdf>
- Department of The Environment and Energy, Australia - <https://www.environment.gov.au/>
- Youtube tutorial by “On Think Tanks” on Tableau Dashboards - <https://www.youtube.com/watch?v=b3EqUh5HwMA&t=234s>
- Tableau public website - <https://public.tableau.com/en-us/s/>
- Datawrapper website - <https://www.datawrapper.de/>
- Quotations about environment by famous people displayed in the introduction of this document - <https://earth911.com/inspire/earth-day-23-quotes/>
- Quotations on environment by the Chief Seattle displayed in the introduction of this document- https://www.goodreads.com/author/quotes/331799.Chief_Seattle
- Clean up Australia - <https://www.cleanup.org.au/clean-up-our-waste>

Appendix A

A.1.Code of the website

A.1.1.Home page (index.html)

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
    <head>
```

```
        <meta charset="UTF-8"/>
```

```
        <meta name="description"      content="Data Visualisation Project"/>
```

```
        <meta name="Keywords"        content="HTML, CSS, D3"/>
```

```
        <meta name="author"          content="Praveen Waragoda 101243288"/>
```

```
    <title> Waste Generation and Management Statistics of Australia 2016-17</title>
```

```
    <!-- code for background color taken from  
https://www.w3schools.com/tags/tag_body.asp --->
```

```
    <style>
```

```
        body {
```

```
            background-color: #ffffe6;
```

```
        }
```

```
        .sbutton1 {
```

```
            background-color: #006699;
```

```
            border: none;
```

```
            color: white;
```

```
padding: 15px 32px;
text-align: center;
text-decoration: none;
display: inline-block;
font-size: 16px;
margin: 4px 2px;
cursor: pointer;
}
.button2 {
background-color: #0088cc;
border: none;
color: white;
padding: 15px 32px;
text-align: center;
text-decoration: none;
display: inline-block;
font-size: 16px;
margin: 4px 2px;
cursor: pointer;
}
.button3 {
background-color: #00aaff;
border: none;
color: white;
padding: 15px 32px;
text-align: center;
text-decoration: none;
display: inline-block;
font-size: 16px;
margin: 4px 2px;
cursor: pointer;
```

```

    }
    .sbutton4 {
        background-color: #66ccff;
        border: none;
        color: white;
        padding: 15px 32px;
        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
</style>
</head>

<body>

    <h1 style='text-align: center'> Waste Generation and Management Statistics of Australia
    2016-17</h1>

    <button class="sbutton1"
    onclick="window.location.href='index.html';">Home</button>

    <button class="sbutton2" onclick="window.location.href='overall.html';">Core
    Waste</button>

    <button class="sbutton3" onclick="window.location.href='fw.html';">Food
    Waste</button>

    <button class="sbutton4" onclick="window.location.href='ow.html';">Organic
    Waste</button>

    <!-- code for menu buttons and styling taken from
    https://www.w3schools.com/css/css3_buttons.asp -->

    <p id="dis" style='text-align: justify'>

```

During the period of 2016-17, Australia produced a total of 113.6 million tonnes of waste including 66.8 million tonnes of general waste (54.5 Mt of core waste + 12.3 Mt of Ash) and 58.3 million tonnes of waste from electricity generation, agriculture and mining.

</p>

<p>

 C&D - Construction and Demolition

 C&I - Commercial and Industrial

 MSW - Municipal Solid Waste

</p>

<!--<iframe title="" aria-label="chart" id="datawrapper-chart-sVf0J" src="https://datawrapper.dwcdn.net/sVf0J/3/" scrolling="no" frameborder="0" style="width: 0; min-width: 100% !important; border: none;" height="579"></iframe>

<script type="text/javascript">!function(){ "use strict"; window.addEventListener("message", (function(a){ if(void 0!==a.data["datawrapper-height"]){ for(var e in a.data["datawrapper-height"]){ var t=document.getElementById("datawrapper-chart- "+e) || document.querySelector("iframe[src*='"+e+"']"); t&&(t.style.height=a.data["datawrapper-height"][e]+"px")}}})());

</script> -->

<iframe title="" aria-label="chart" id="datawrapper-chart-sVf0J" src="https://datawrapper.dwcdn.net/sVf0J/6/" scrolling="no" frameborder="0" style="width: 0; min-width: 100% !important; border: none;" height="656"></iframe>

<script type="text/javascript">!function(){ "use strict"; window.addEventListener("message", (function(a){ if(void 0!==a.data["datawrapper-height"]){ for(var e in a.data["datawrapper-height"]){ var t=document.getElementById("datawrapper-chart- "+e) || document.querySelector("iframe[src*='"+e+"']"); t&&(t.style.height=a.data["datawrapper-height"][e]+"px")}}})());

</script>

<p>

Next Page <button class="sbutton5" onclick="window.location.href='overall.html';">Core Waste</button>

</p>

<p id="discl">

Disclaimer :- This website contains visualisations created for the final project for COS30045 Data Visualisation Subject at Swinburne University Melbourne Australia 2020, using the data from National Waste Report 2018 prepared for Department of Environment and Energy by RANDELL ENVIRONMENTAL CONSULTING published on 19th of November 2018.

</p>

<footer>Swinburne University 2020 Semester 01 COS30045 Data Visualisation Project
Praveen Waragoda 101243288</footer>

</body>

</html>

A.1.2.Core Waste page(overall.html)

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="UTF-8"/>
```

```
<meta name="description"      content="Data Visualisation Project"/>
```

```
<meta name="Keywords"        content="HTML, CSS, D3"/>
```

```
<meta name="author"          content="Praveen Waragoda 101243288"/>
```

```
<title> Waste Generation and Management Statistics of Australia 2017-18</title>
```

```
<!-- code for background color taken from  
https://www.w3schools.com/tags/tag_body.asp --->
```

```
<style>
```

```
    body {  
        background-color: #ffffe6;  
    }
```

```
.sbutton1 {  
    background-color: #e6b800;  
    border: none;  
    color: white;  
    padding: 15px 32px;  
    text-align: center;  
    text-decoration: none;  
    display: inline-block;
```

```
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
    .sbutton2 {
        background-color: #ffd11a;
        border: none;
        color: white;
        padding: 15px 32px;
        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
    .sbutton3 {
        background-color: #ffdb4d;
        border: none;
        color: white;
        padding: 15px 32px;
        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
    .sbutton4 {
        background-color: #ffe680;
        border: none;
```

```

        color: white;
        padding: 15px 32px;
        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
</style>
</head>

<body>

    <h1 style='text-align: center;'> Core waste generation and Management Statistics of Australia
    2016-17</h1>

    <button class="sbutton1"
    onclick="window.location.href='index.html';">Home</button>

    <button class="sbutton2" onclick="window.location.href='overall.html';">Core
    Waste </button>

    <button class="sbutton3" onclick="window.location.href='fw.html';">Food
    Waste</button>

    <button class="sbutton4" onclick="window.location.href='ow.html';">Organic
    Waste</button>

    <!-- code for menu buttons and styling taken from
    https://www.w3schools.com/css/css3_buttons.asp -->

    <p id="chart1">

```

`<p style='text-align: center'>`

The following graphic contains the details of core waste management statistics of individual states. The waste had been processed using three management methods.

``

`Recycling`

`Energy recovery`

`Disposal`

``

Click on each state/territory on the map and it will filter the relevant statistics specific for the selected state/territory.

`</p>`

`<div class='tableauPlaceholder' id='viz1591269686929' style='position: relative; margin: auto;'>`

`<noscript></noscript>`

`<object class='tableauViz' style='display:none;'>`

`<param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />`

`<param name='embed_code_version' value='3' />`

`<param name='site_root' value='' />`

`<param name='name' value='project_15910096890420/Dashboard1' />`

`<param name='tabs' value='no' />`

`<param name='toolbar' value='yes' />`

`<param name='static_image' value='https://public.tableau.com/static/images/pr/project_15910096890420/Dashboard1/1.png' />`

`<param name='animate_transition' value='yes' />`

`<param name='display_static_image' value='yes' />`

`<param name='display_spinner' value='yes' />`

```

<param name='display_overlay' value='yes' />
<param name='display_count' value='yes' />
</object>
</div>

```

```

<script type='text/javascript'>
var divElement = document.getElementById('viz1591269686929');
var vizElement = divElement.getElementsByTagName('object')[0];
if ( divElement.offsetWidth > 800 ) {
vizElement.style.width='800px';vizElement.style.height='827px';}
else if ( divElement.offsetWidth > 500 ) {
vizElement.style.width='800px';vizElement.style.height='827px';}
else { vizElement.style.width='100%';vizElement.style.height='727px';}
var scriptElement = document.createElement('script');
scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
vizElement.parentNode.insertBefore(scriptElement, vizElement);

</script>

```

```

</p>

```

<h3 style='text-align: center'>Generation and Management of Core waste + Ash grouped by material categories</h3>

<p id='para2' style='text-align: center'>

Each bubble represents the total amount of waste generated in each material category.

Click on bubbles to filter the data related to management of core waste that belongs to different material categories.

<div class='tableauPlaceholder' id='viz1591624760020' style='position: relative; margin: auto;'>

```

<noscript><a href='#'><img alt='
src='https://public.tableau.com/static/images/Bo/Book4_159162440
60500/Dashboard1/1_rss.png' style='border: none' /></a></noscript>

```

```

<object class='tableauViz' style='display:none;'><param name='host_url'
value='https://public.tableau.com/' />

```

```

<param name='embed_code_version' value='3' />

```

```

<param name='site_root' value='' />

```

```

<param name='name' value='Book4_15916244060500/Dashboard1' />

```

```

<param name='tabs' value='no' />

```

```

<param name='toolbar' value='yes' />

```

```

<param name='static_image'
value='https://public.tableau.com/static/images/Bo/Book4_1591624
4060500/Dashboard1/1.png' />

```

```

<param name='animate_transition' value='yes' />

```

```

<param name='display_static_image' value='yes' />

```

```

<param name='display_spinner' value='yes' />

```

```

<param name='display_overlay' value='yes' />

```

```

<param name='display_count' value='yes' />

```

```

<param name='filter' value='publish=yes' />

```

```

</object>

```

```

</div>

```

```

<script type='text/javascript'>

```

```

var divElement = document.getElementById('viz1591624760020');

```

```

var vizElement = divElement.getElementsByTagName('object')[0];

```

```

if ( divElement.offsetWidth > 800 ) {
vizElement.style.width='800px';vizElement.style.height='827px';}

```

```

else if ( divElement.offsetWidth > 500 ) {
vizElement.style.width='800px';vizElement.style.height='827px';}

```

```

else { vizElement.style.width='100%';vizElement.style.height='727px';}

```

```

var scriptElement = document.createElement('script');

```

```

scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';

```

```

vizElement.parentNode.insertBefore(scriptElement, vizElement);

```

```
</script>
```

```
</p>
```

```
<p>
```

```
    Back to <button class="sbutton5"
onclick="window.location.href='index.html';">Home</button> | Next Page <button
class="sbutton5" onclick="window.location.href='fw.html';">Food Waste</button>
```

```
</p>
```

```
    <footer>Swinburne University 2020 Semester 01 COS30045 Data Visualisation Project
Praveen Waragoda 101243288</footer>
```

```
</body>
```

```
</html>
```

A.1.3 Food Waste page (fw.html)

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
    <head>
```

```
        <meta charset="UTF-8"/>
```

```
        <meta name="description"      content="Data Visualisation Project"/>
```

```
        <meta name="Keywords"        content="HTML, CSS, D3"/>
```

```
        <meta name="author"          content="Praveen Waragoda 101243288"/>
```

```
    <title> Waste Generation and Management Statistics of Australia 2016-17</title>
```

```
    <!-- code for background color taken from  
    https://www.w3schools.com/tags/tag_body.asp --->
```

```
    <style>
```

```
        body {
```

```
            background-color: #ffffe6;
```

```
        }
```

```
        .sbutton1 {
```

```
            background-color: #990000;
```

```
            border: none;
```

```
            color: white;
```

```
            padding: 15px 32px;
```

```
            text-align: center;
```

```
            text-decoration: none;
```

```
            display: inline-block;
```

```
            font-size: 16px;
```



```
        margin: 4px 2px;
        cursor: pointer;
    }
    .sbutton2 {
        background-color: #cc0000;
        border: none;
        color: white;
        padding: 15px 32px;
        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
    .sbutton3 {
        background-color: #ff0000;
        border: none;
        color: white;
        padding: 15px 32px;
        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
    .sbutton4 {
        background-color: #ff4d4d;
        border: none;
        color: white;
```

```

padding: 15px 32px;
text-align: center;
text-decoration: none;
display: inline-block;
font-size: 16px;
margin: 4px 2px;
cursor: pointer;
}
</style>
</head>

<body>

<h1 style='text-align: center'> Food Waste Management Statistics of Australia 2016-17</h1>


<button class="sbutton1"
onclick="window.location.href='index.html';">Home</button>

<button class="sbutton2" onclick="window.location.href='overall.html';">Core
Waste </button>

<button class="sbutton3" onclick="window.location.href='fw.html';">Food
Waste</button>

<button class="sbutton4" onclick="window.location.href='ow.html';">Organic
Waste</button>

<!-- code for menu buttons and styling taken from
https://www.w3schools.com/css/css3_buttons.asp -->

<p id='fwdis' style='text-align: justify'>

```

According to the national waste report, Australia produced 5 Million tonnes of food waste comprised of 4.3 million tonnes of non hazardous food waste and 0.7 million tonnes of hazardous food waste. The reports cites that, Non hazardous food waste is mainly the core food waste discarded from house holds and businesses where as hazardous food waste includes grease trap sludges and wastes from abattoirs and tanneris. The following chart depicts the management methods and percentages of waste dealt by each method. Hover over the graph to get the details.

</p>

```
<div class='tableauPlaceholder' id='viz1591457941912' style='position: relative; margin:
auto;'>
```

```
<noscript><a href='#'><img alt=' '
src='https://public.tableau.com/static/images/pr/project_159100968
90420/Sheet2/1_rss.png' style='border: none' /></a></noscript>
```

```
<object class='tableauViz' style='display:none;'>
```

```
<param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
```

```
<param name='embed_code_version' value='3' />
```

```
<param name='site_root' value='' />
```

```
<param name='name' value='project_15910096890420/Sheet2' />
```

```
<param name='tabs' value='no' /><param name='toolbar' value='yes' />
```

```
<param name='static_image'
value='https://public.tableau.com/static/images/pr/project_1591009
6890420/Sheet2/1.png' />
```

```
<param name='animate_transition' value='yes' />
```

```
<param name='display_static_image' value='yes' />
```

```
<param name='display_spinner' value='yes' />
```

```
<param name='display_overlay' value='yes' />
```

```
<param name='display_count' value='yes' />
```

```
</object>
```

```
</div>
```

```
<script type='text/javascript'>
```

```
var divElement = document.getElementById('viz1591457941912');
```

```
var vizElement = divElement.getElementsByTagName('object')[0];
```

```
if ( divElement.offsetWidth > 800 ) {
vizElement.style.width='1000px';vizElement.style.height='827px';}
```

```
        else if ( divElement.offsetWidth > 500 ) {  
vizElement.style.width='1000px';vizElement.style.height='827px';}  
        else { vizElement.style.width='100%';vizElement.style.height='727px';}  
        var scriptElement = document.createElement('script');  
        scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';  
        vizElement.parentNode.insertBefore(scriptElement, vizElement);  
    </script>  
  
    <p>  
        Back to <button class="sbutton5"  
onclick="window.location.href='index.html';">Home</button> | Previous Page <button  
class="sbutton6" onclick="window.location.href='overall.html';">Core Waste</button> | Next Page  
<button class="sbutton7" onclick="window.location.href='ow.html';">Organic Waste</button>  
    </p>  
  
    <footer>Swinburne University 2020 Semester 01 COS30045 Data Visualisation Project  
Praveen Waragoda 101243288</footer>  
    </body>  
  
</html>
```

A.1.4. Organic Waste page (ow.html)

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="UTF-8"/>
```

```
<meta name="description"      content="Data Visualisation Project"/>
```

```
<meta name="Keywords"        content="HTML, CSS, D3"/>
```

```
<meta name="author"          content="Praveen Waragoda 101243288"/>
```

```
<title> Waste Generation and Management Statistics of Australia 2016-17</title>
```

```
<!-- code for background color taken from  
https://www.w3schools.com/tags/tag\_body.asp --->
```

```
<style>
```

```
    body {
```

```
        background-color: #ffffe6;
```

```
    }
```

```
.sbutton1 {
```

```
    background-color: #734d26;
```

```
    border: none;
```

```
    color: white;
```

```
    padding: 15px 32px;
```

```
    text-align: center;
```

```
    text-decoration: none;
```

```
    display: inline-block;
```

```
    font-size: 16px;
```

```
    margin: 4px 2px;
```

```
        cursor: pointer;
    }
    .button2 {
        background-color: #ac7339;
        border: none;
        color: white;
        padding: 15px 32px;
        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
    .button3 {
        background-color: #c68c53;
        border: none;
        color: white;
        padding: 15px 32px;
        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
    .button4 {
        background-color: #d2a679;
        border: none;
        color: white;
        padding: 15px 32px;
```

```

        text-align: center;
        text-decoration: none;
        display: inline-block;
        font-size: 16px;
        margin: 4px 2px;
        cursor: pointer;
    }
</style>
</head>

<body>

    <h1 style='text-align: center'> Organic Waste Generation and Management Statistics of
Australia 2016-17</h1>

    <button class="sbutton1"
onclick="window.location.href='index.html';">Home</button>

    <button class="sbutton2" onclick="window.location.href='overall.html';">Core
Waste</button>

    <button class="sbutton3" onclick="window.location.href='fw.html';">Food
Waste</button>

    <button class="sbutton4" onclick="window.location.href='ow.html';">Organic
Waste</button>

    <!-- code for menu buttons and styling taken from
https://www.w3schools.com/css/css3_buttons.asp -->

<p>

    Australia produced 30 million tonnes of organic waste in the year of 2016-17. The waste
predominatly can be catagorised into following streams,

    <ol>

        <li>C&I (agriculture & fisheries) </li>

        <li>C&I (core) </li>

```

```

        <li>C&D </li>
        <li>MSW </li>
    </ol>

```

Following charts contain a break down of the organic waste generation by the stream and material category.

```

<ul>
    <li> C&D - Construction and Demolition</li>
    <li> C&I - Commercial and Industrial </li>
    <li> MSW - Municipal Solid Waste </li>

```

```

</ul>

```

```

</p>

```

```

<p id="g1">
    <div class='tableauPlaceholder' id='viz1591457941912' style='position: relative'>
        <noscript><a href='#'><img alt='
src='https://public.tableau.com/static/images/pr/project_159100968
90420/Sheet3/1_rss.png' style='border: none' /></a></noscript>
        <object class='tableauViz' style='display:none;'>
            <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
            <param name='embed_code_version' value='3' />
            <param name='site_root' value='' />
            <param name='name' value='project_15910096890420/Sheet3' />
            <param name='tabs' value='no' /><param name='toolbar' value='yes' />
            <param name='static_image'
value='https://public.tableau.com/static/images/pr/project_1591009
6890420/Sheet3/1.png' />
            <param name='animate_transition' value='yes' />
            <param name='display_static_image' value='yes' />

```



```

<param name='display_spinner' value='yes' />
<param name='display_overlay' value='yes' />
<param name='display_count' value='yes' />
</object>
</div>

<script type='text/javascript'>
var divElement = document.getElementById('viz1591457941912');
var vizElement = divElement.getElementsByTagName('object')[0];
if ( divElement.offsetWidth > 800 ) {
vizElement.style.width='1000px';vizElement.style.height='827px';}

else if ( divElement.offsetWidth > 500 ) {
vizElement.style.width='1000px';vizElement.style.height='827px';}

else { vizElement.style.width='100%';vizElement.style.height='727px';}
var scriptElement = document.createElement('script');
scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
vizElement.parentNode.insertBefore(scriptElement, vizElement);
</script>
</p>

<p id="g2">

<div class='tableauPlaceholder' id='viz1591697901295' style='position: relative'>

<noscript><a href='#'><img alt='
src='https://public.tableau.com/static/images/Book5_159169785
20610/Dashboard1/1_rss.png' style='border: none' /></a></noscript>

<object class='tableauViz' style='display:none;'>
<param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
<param name='embed_code_version' value='3' />
<param name='site_root' value='' />
<param name='name' value='Book5_15916978520610/Dashboard1' />
<param name='tabs' value='no' />

```

```

    <param name='toolbar' value='yes' />

    <param name='static_image'
value='https://public.tableau.com/static/images/Bo/Book5_1591697
8520610/Dashboard1/1.png' />

    <param name='animate_transition' value='yes' />
    <param name='display_static_image' value='yes' />
    <param name='display_spinner' value='yes' />
    <param name='display_overlay' value='yes' />
    <param name='display_count' value='yes' />
  </object>
</div>

<script type='text/javascript'>
var divElement = document.getElementById('viz1591697901295');
var vizElement = divElement.getElementsByTagName('object')[0];
vizElement.style.width='100%';vizElement.style.height=(divElement.offsetWidth*0.75)+'px';
var scriptElement = document.createElement('script');
scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
vizElement.parentNode.insertBefore(scriptElement, vizElement);
</script>

</p>

<p>
  Back to <button class="sbutton5"
onclick="window.location.href='index.html';">Home</button> | Previous Page <button
class="sbutton6" onclick="window.location.href='fw.html';">Food Waste</button>

</p><footer>Swinburne University 2020 Semester 01 COS30045 Data Visualisation Project
Praveen Waragoda 101243288</footer>

</body>

</html>

```

A.2. URL of the Website

URL of project website :- <https://mercury.swin.edu.au/cos30045/s101243288/project/index.html>