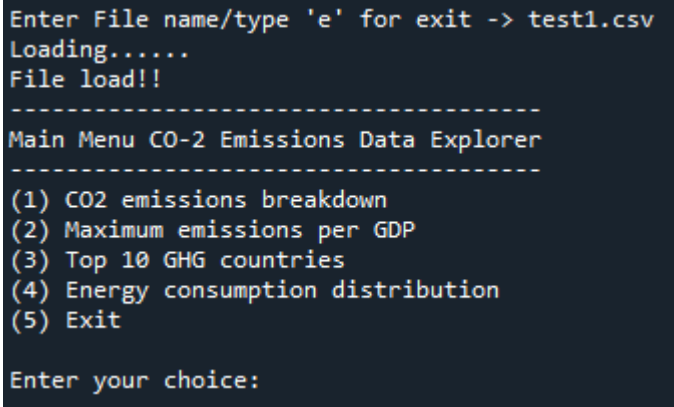
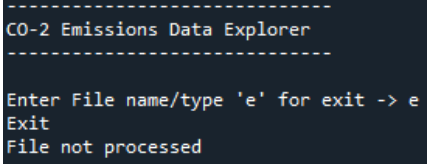
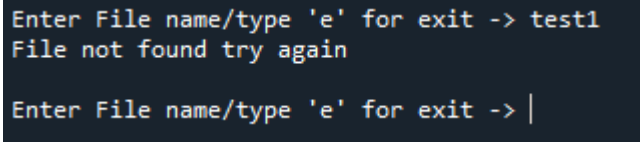
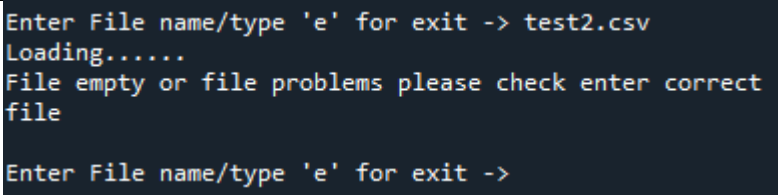
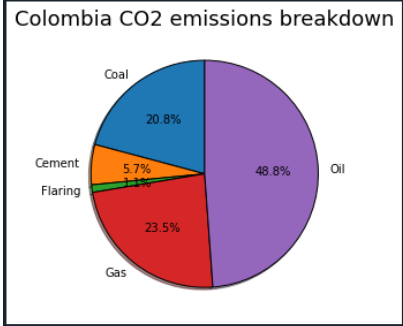


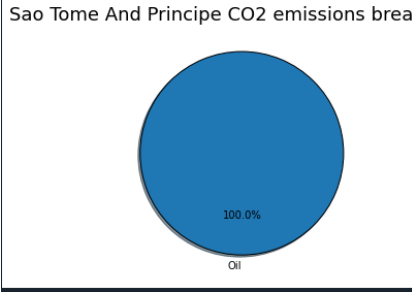
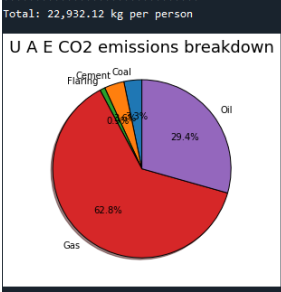
Task 1: Black box testing

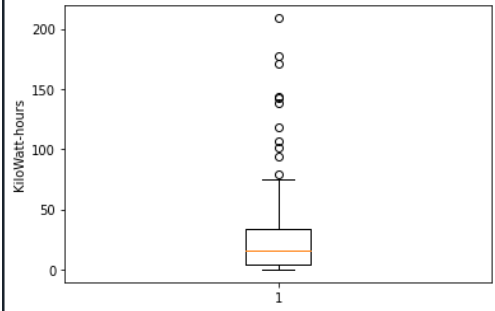
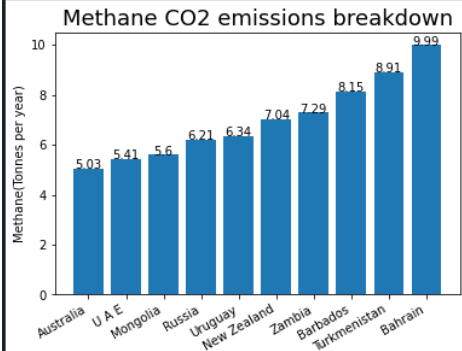
Test Data Table				
Case	Test data	The reason it was selected	The output expected	The screenshot of the actual output
1	test1.csv	Normal use to open the file and processes	A prompt message that the file is loading and when it is done! Say "File Load!!" and show the "Main Menu"	 <pre> Enter File name/type 'e' for exit -> test1.csv Loading..... File load!! ----- Main Menu CO-2 Emissions Data Explorer ----- (1) CO2 emissions breakdown (2) Maximum emissions per GDP (3) Top 10 GHG countries (4) Energy consumption distribution (5) Exit Enter your choice: </pre>
2	e	Normal use exit during the stage of loading the file (optional)	A prompt message "Exit /file not processed"	 <pre> ----- CO-2 Emissions Data Explorer ----- Enter File name/type 'e' for exit -> e Exit File not processed </pre>
3	test1	Normal use name of the file but not include the extension	Prompt "File not found try again" prompt enter name user	 <pre> Enter File name/type 'e' for exit -> test1 File not found try again Enter File name/type 'e' for exit -> </pre>
4	test2.csv	Normal Use the file does not contain any data (empty data)	Raise exception "File empty or file problems please check to enter correct file"	 <pre> Enter File name/type 'e' for exit -> test2.csv Loading..... File empty or file problems please check enter correct file Enter File name/type 'e' for exit -> </pre>

5	test3.csv	Normal use – files contain data that can not be converted into a number	Raise exception “error some values could not convert string to float - please check to enter correct file”	<pre> Enter File name/type 'e' for exit -> test3.csv Loading..... error some values could not convert string to float - please check enter correct file Enter File name/type 'e' for exit -> </pre>
6	test4.csv	Normal use – file containing values that can not be used as divisors can generate an error	Raise exception “ Population/GDP/Energy Consumption can not divide by zero”	<pre> Enter File name/type 'e' for exit -> test4.csv Loading..... Population/GDP/Energy Consumption can not divide by zero Enter File name/type 'e' for exit -> </pre>
7	test5.csv	Normal use – the file contains header but not values	Raise exception “ keys no found” the file can not be load if key are empty or ‘0’	<pre> Enter File name/type 'e' for exit -> test5.csv Loading..... keys no found, file must be not used File not processed File empty or file problems please check enter correct file Enter File name/type 'e' for exit -> File empty or file problems please check enter correct file Enter File name/type 'e' for exit -> </pre>
8	Main Menu option (0)	Boundary Condition - it's the lowest outrange	error message	<pre> Enter File name/type 'e' for exit -> carbon.csv Loading..... File load!! ----- Main Menu CO-2 Emissions Data Explorer ----- (1) CO2 emissions breakdown (2) Maximum emissions per GDP (3) Top 10 GHG countries (4) Energy consumption distribution (5) Exit Enter your choice: 0 Invalid input. Enter a value between 1-5. </pre>

9	Main Menu option (6)	Boundary Condition - it's the highest outrange	error message	<pre> Enter your choice: 6 Invalid input. Enter a value between 1-5. ----- Main Menu CO-2 Emissions Data Explorer ----- (1) CO2 emissions breakdown (2) Maximum emissions per GDP (3) Top 10 GHG countries (4) Energy consumption distribution (5) Exit Enter your choice: </pre>
10	a	Improper usage - it is a character the program just accepts integers	error message	<pre> Enter your choice: a Invalid input!!. Enter an option between 1-5. ----- Main Menu CO-2 Emissions Data Explorer ----- (1) CO2 emissions breakdown (2) Maximum emissions per GDP (3) Top 10 GHG countries (4) Energy consumption distribution (5) Exit Enter your choice: </pre>

11	Input option 1 – “ colOmbia ”	Normal usage – the string contains the name with some spaces the program can handle	Show results	<pre>Enter your choice: 1 Please enter the country name: colOmbia +++++<Colombia>+++++ Colombia CO2 emissions breakdown: Coal : 403.26 Cement : 110.51 Flaring : 20.84 Gas : 455.51 Oil : 945.39 ***** Total: 1,935.48 kg per person</pre> <div><p>Colombia CO2 emissions breakdown</p><table border="1"><thead><tr><th>Category</th><th>Percentage</th></tr></thead><tbody><tr><td>Oil</td><td>48.8%</td></tr><tr><td>Gas</td><td>23.5%</td></tr><tr><td>Coal</td><td>20.8%</td></tr><tr><td>Cement</td><td>5.7%</td></tr><tr><td>Flaring</td><td>1.2%</td></tr></tbody></table></div>	Category	Percentage	Oil	48.8%	Gas	23.5%	Coal	20.8%	Cement	5.7%	Flaring	1.2%
Category	Percentage															
Oil	48.8%															
Gas	23.5%															
Coal	20.8%															
Cement	5.7%															
Flaring	1.2%															
12	Input option 1 – “ col0mbia ”	Improper usage - it is a character with the number “0” the program just compares the exact name	Error invalid input / unknown country	<pre>Enter your choice: 1 Please enter the country name: col0mbia That is an invalid or unknown country. Please enter the country name:</pre>												

13	Input option 1 – “sao tome and principe “or “ u a e ”	Normal use – strings with more than 1 word – extra space handles	Show results	<div> <pre> Please enter the country name: sao tome and principe +++++<Sao Tome And Principe>+++++ Sao Tome And Principe CO2 emissions breakdown: Oil : 615.09 ***** Total: 615.09 kg per person </pre>  </div> <div> <pre> Please enter the country name: u a e +++++<U A E>+++++ U A E CO2 emissions breakdown: Coal : 745.65 Cement : 820.85 Flaring : 214.51 Gas : 14,412.17 Oil : 6,738.93 ***** Total: 22,932.12 kg per person </pre>  </div>
14	Input option 3 - a	Improper usage - it is a character the program just accepts integers	Invalid input message	<pre> Enter your choice: a Invalid input!!. Enter an option between 1-4. -----Choose The Greenhouse Gas----- (1) Methane (2) Nitrous Oxide (3) Total (4) Back Main Menu </pre>
15	Option 2	Normal use – request option 2	Show results	<pre> Enter your choice: 2 Zambia had the maximum greenhouse gas emissions: 8.72 kg per dollar of GDP </pre>

16	Option 4	Normal use – request option 4		<div> Main Menu CO-2 Emissions Data Explorer (1) CO2 emissions breakdown (2) Maximum emissions per GDP (3) Top 10 GHG countries (4) Energy consumption distribution (5) Exit Enter your choice: 4  </div>
17	Option 3- submenu 1	Normal use – request option 4	Show results and plot	<div> Enter your choice: 3 -----Choose The Greenhouse Gas----- (1) Methane (2) Nitrous Oxide (3) Total (4) Back Main Menu Enter your choice: 1  </div>

18	Option 3 - submenu 4	Normal use – exit to the main menu	Show the main menu	<pre>-----Choose The Greenhouse Gas----- (1) Methane (2) Nitrous Oxide (3) Total (4) Back Main Menu Enter your choice: 4 ----- Main Menu CO-2 Emissions Data Explorer ----- (1) CO2 emissions breakdown (2) Maximum emissions per GDP (3) Top 10 GHG countries (4) Energy consumption distribution (5) Exit Enter your choice:</pre>
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