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| --- | --- | --- | --- |
| Test Data | Reason | Expected Output | Actual Output |
| Invalid file name | Check if it can handle incorrect file name. | Output “Error: File not found”. | “Error: File not found” outputted. |
| File name “popdata.txt” without path entered | Check handling of file name. | Output “Error: File not found”. | “Error: File not found” outputted. |
| Full correct path for “popdata.txt” entered. | Check handling of file name. | Main menu outputted and user prompted to choose an option. | Main menu displayed in list. The user is prompted to choose an option. |
| File “popdata.txt” is used. From main menu “one” is entered. | Check menu handling. | User is told it’s an invalid option. | Output “Invalid option. Please try again” and menu reprinted. |
| File “popdata.txt” is used. From main menu “5.” is entered. | Check menu handling. | User is told it’s an invalid option. | Output “Invalid option. Please try again” and menu reprinted. |
| File “popdata.txt” is used. From main menu “Exit the Program” is entered. | Check menu handling with capitalisation. | Input converted to all lowercase. The program exits. | Program exits |
| File “popdata.txt” is used. From main menu “aGE gROUP dISTRIBUTION” is entered. | Check menu handling with capitalisation. | Input converted to all lowercase. User shown Age Group Distribution. | *Appendix 1* |
| File “popdata.txt” is used. From main menu “Urban” is entered. | Check partial input. | User is told it’s an invalid option. | Output “Invalid option. Please try again” and menu reprinted. |
| File “popdata.txt” is used. From main menu “4” is entered. | Checks number input and Top 5 Populated Regions chart. | Top 5 populated regions shown a bar chart. Shows New York, Los Angeles, Chicago, Houston and Philadelphia. | *Appendix 2* |
| File “popdata.txt” is used. From main menu “1” is entered. | Checks region list printing | A list of all regions is printed, and user is prompted to enter one of them. | List of regions outputted, and user prompted to enter region name. |
| File “popdata.txt” is used. From main menu “1” is entered then “Pheonix” is entered. | Checks incorrect region input handling. | User is told it an invalid input. | Output “Error: Region not found.” And user is returned to menu. |
| File “popdata.txt” is used. From main menu “1” is entered then “9” is entered. | Checks incorrect region input handling. | User is told it an invalid input. | Output “Error: Region not found.” And user is returned to menu. |
| File “popdata.txt” is used. From main menu “1” is entered then “atlanta” is entered. | Checks region demographics and capitalisation. | User is shown Atlanta’s population demographics. | Atlanta’s population demographics shown by gender, age groups and land designation. |
| File “popdata.txt” is used. From main menu “3” is entered then “Tucson” is entered. | Checks land designation population. | Population for Tucson Aryzooongya! Is shown in a bar graph for urban and rural split. | Bar chart of Tucson Aryzooongya! Is shown for urban and rural population. |
| File “test1.txt” is used. | Checks handling of blank file. | User told file can’t be used and program exits. | Output “No valid file found.” and program exits. |
| File “test2.txt” is used. Top 5 populated regions run. | Check function handling file with less than 5 regions. | Displays all 3 regions sorted from most to least populated. | 3 regions shown by total population. |
| File “test2.txt” is used. From main menu “1” is entered. | Checks printing of smaller region list. | List of 3 regions shown. | 3 regions shown and user prompted to enter region name. |
| File “test3.txt” is used. | Checks handling of “,” instead of “|” as data separator. | Program shouldn’t be able to split data. And tell user it isn’t a valid file. | Output “No valid file found.” |
| File “test4.txt” is used. From the main menu “1” then “New York” is entered. | Checks handling of more precise numbers. | Displays New Yorks population with the precise files number for total population. | Population of “625625” displayed. |
| File “test4.txt” is used. From the main menu “1” then “Phoenix” is entered. | Checks handling of float rather than integers. | Displays the full decimal value of total population. | Population of “1424511.5” displayed. |

## Appendix 1

A pie chart with numbers and a few different colored circles

Description automatically generated with medium confidence

## Appendix 2

A screenshot of a graph

Description automatically generated