**Testing Technique 1 Test Case:**

**Test Data**: **Student ID:** 129384792, **Assessment 1**: 45, **Assessment 2:** 65, **Overall**: 55.0

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| --- | --- | --- | --- | --- | --- |
| Test Case ID | Test Case | Input | Expected Output | Actual Output | Pass/Fail |
| **TC0** | Testing default values to open the CSV file, calculate overall grade and visualise results | 50,50 | Open CSV and correctly calculate overall grade with visualisation | Opened CSV and correctly calculated overall grade with visualisation | Pass |

**Testing Techniques 2 Test Cases:**

**Test Data**: Different Variants Of StudentApp.csv

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| --- | --- | --- | --- | --- | --- |
| Test Case ID | Test Case | Input | Expected Output | Actual Output | Pass/Fail |
| **TC1** | Open empty csv file | Csv file with no headers and no data | Display error: “The uploaded file is invalid. Please provide a CSV file with six specific columns: [list of column names].” | Display error: "Failed to load CSV.  No columns to parse from file" | Fail |
| **TC2** | Open csv file with correct headers and no data | Csv file with correct headers and no data | Displayed error: “The uploaded file is invalid. Column ‘assessment1’ and ‘assessment2’ must contain valid numerical data.” | Displayed error: "Failed to loSad CSV, no numeric data to plot" | Fail |
| **TC3** | Open csv file with incorrect header names and no data | Csv file with incorrect header names and no data | Display error: “The uploaded file is invalid. Please provide a CSV file with six specific columns: [list of column names].” | Displayed error: "Failed to load CSV file. ‘assessment1’" | Fail |
| **TC4** | Open csv file with an extra unspecified header and no data | Csv file with an extra header | Display error: “The uploaded file is invalid. Please provide a CSV file with six specific columns: [list of column names].” | Loaded csv file with extra column | Fail |
| **TC5** | Open csv file with duplicate student id columns | Csv file with duplicate student id column | Display error: “The uploaded file is invalid. The column studentID must contain unique values” | Loaded csv file with duplicate student id | Fail |
| **TC6** | Open csv file with numeric values in string columns (W\_or\_I, assessment2\_NS, assessment1\_NS) | Csv file with numeric values in columns (W\_or\_I, assessment2\_NS, assessment1\_NS). | Display error: “The uploaded file is invalid. Columns W\_or\_I, assessment2\_NS, assessment1\_NS must be a string | Loaded csv file with numerical values in specified columns | Fail |
| **TC7** | Open csv file with unspecified strings in string columns | Csv file with string values inside specified columns which do not match the brief | Display error: “The uploaded file is invalid. Column ‘W\_or\_I’ must have value W,I or empty, Column ‘assessment2\_NS’ must have value Y or N, and column ‘assessment1\_NS’ must have value Y or N | Loaded csv file with unspecified string values in specified columns | Fail |
| **TC8** | Open csv file with correct headers and non-numeric data in numerical fields | Csv file with non-numeric data in numeric fields | Display error: "The uploaded file is invalid. Column assessment1 and assessment2 must contain valid numerical data.” | Displayed error: "Can't multiply sequence by non-int of type float" | Fail |
| **TC9** | Open a large csv file (12,500 KB) | 12,500 KB file | Display error: " The uploaded file is invalid. File is too big to open" | System crashed | Fail |
| **TC10** | Open csv file with duplicate headers and numerical data | Csv file with 6 specific columns, duplicated WITH numerical data | Display error: "The uploaded file is invalid. Please provide a CSV file with **six** specific columns: [list of column names].” | Displayed error: "Can't multiply sequence by non-int of type float" | Fail |
| **TC11** | Open csv file with headers and just commas inside columns | Csv file with headers and only ‘,,,,,’ values in columns | Display error: “The uploaded file is invalid. Columns assessment1 and assessment2 must have valid numerical data” | Loaded null data | Fail |
| **TC12** | Open csv file with unexpected formatting data for numerical fields | Valid data with unexpected formatting (e.g., extra spaces) | Display error: “The uploaded file is invalid. Each column in the file must contain valid numerical data.” | Displayed error: "Can't multiply sequence by non-int of type float | Fail |
| **TC13** | Open csv file with N/A for all values | Csv file with N/A in every column | Display error: “The uploaded file is invalid. Columns assessment1 and assessment2 must contain valid numerical data.” | Opened csv file with nan values | Fail |
| **TC14** | Open csv file with mixed delimiters | Data with both commas and semicolons | Display error: " The uploaded file is invalid. The file must have values separated by commas " | Displayed error: "Inconsistent delimiters" | Fail |
| **TC15** | Open csv with negative numerical values for assessment1 and 2 | Negative numbers for assessment1 and 2 columns | Display error: "The uploaded file is invalid. Columns assessment1 and assessment2 must be within the range 0-100" | Successfully loaded csv file | Fail |
| **TC16** | Open csv with very large numerical values for assessment1 and 2 | Large numbers for assessment1 and 2 columns | Display error: "The uploaded file is invalid. Columns assessment1 and assessment2 must be within the range 0-100" | Successfully loaded csv file | Fail |

**Testing Technique 3 Test Cases:**

**Test Data**: StudentApp.csv

**Equivalence Partitioning**

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| --- | --- | --- | --- | --- | --- |
| Test Case ID | Test Case | Input | Expected Output | Actual Output | Pass/Fail |
| **TC18** | Testing lower out of range values to open csv file | -1, 101 | Display error: "The inputted weights are invalid. Weights must total 100% (e.g., assessment1: 40.0, assessment2: 60.0)" | Opened CSV and correctly calculated overall grade | Fail |
| **TC19** | Testing higher out of range values to open csv file | 101, -1 | Display error: "The inputted weights are invalid. Weights must total 100% (e.g., assessment1: 40.0, assessment2: 60.0)" | Opened CSV and correctly calculated overall grade | Fail |
| **TC20** | Testing empty and null values to open csv file | “”,”” | Display error: “Inputted values cannot be empty” | Displayed error: “Failed to load CSV file. Expecting floating-point number but got “” | Fail |
| **TC21** | Testing invalid types to open csv file | Hello, World | Display error: "The inputted weights are invalid. Values must be numbers between 0 and 100." | Displayed error: “Failed to load CSV file. Expecting floating-point number but got “hello” | Fail |

**Testing Technique 3 Test Cases:**

**Test Data**: StudentApp.csv

**Additional Exploratory Testing**

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| --- | --- | --- | --- | --- | --- |
| Test Case ID | Test Case | Input | Expected Output | Actual Output | Pass/Fail |
| **TC22** | Testing foreign decimal notation in weights | 10,5; 90,0 | Display error: "Invalid input format. Use a decimal point (.) for numerical values." | Displayed error: "Can't multiply sequence by non-int of type float" | Fail |
| **TC23** | Testing recognition of numerical words in weights | “Fifty-five” | Display error: "The weights must be numerical values." | Displayed error: "Can't multiply sequence by non-int of type float" | Fail |
| **TC24** | Testing low partition near 0 | 0.01, 99.09 | Opened CSV and calculated grade correctly | Opened CSV and calculated grade correctly | Pass |
| **TC25** | Testing non-English numerals for weights | ५०, ५० | Display error: "The weights must be numerical values between 0 and 100 in English numerals." | Displayed error: "Can't interpret non-English numerals" | Fail |
| **TC26** | Testing high decimal precision in weights | 33.3333, 66.6667 | Opened CSV and calculated grade correctly | Opened CSV and calculated grade correctly | Fail |
| **TC27** | Testing values at exact boundary of valid range | 0, 100 | Successfully open CSV file. | Opened CSV file successfully | Pass |
| **TC28** | Testing random valid weights | 25, 75 | Successfully open CSV file. | Opened CSV file successfully | Pass |
| **TC29** | Testing high decimal values in sequence | 33.3, 66.7; 25.5, 74.5 | Opened CSV and calculated grade correctly | Opened CSV and calculated grade correctly | Pass |
| **TC30** | Testing single weight entry | 40, | Display error: "Both weights must be entered to open CSV file." | No error displayed, CSV not opened | Fail |
| **TC31** | Testing special characters in weights | @, # | Display error: "The inputted weights are invalid. Values must be numbers between 0 and 100." | Displayed error: "Can't interpret special characters" | Fail |