SDEV 300 - Lab 2  
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**Test Cases**

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| **Test #** | **Scenario** | **Expected Result** | **Actual Result** |
| 1 | The user opens the voter registration application on the command line using the command ‘python math\_and\_secret\_generation.py’. The user is welcomed, the menu is displayed, and the user is asked to input a selection from the menu. | Welcome to the Python SDEV300 Lab 2 Application.  What would you like to do today?  a. Generate a Secure Password  b. Calculate and format a percentage  c. How many days from today until July 4, 2025?  d. Use the Law of Cosines to calculate the leg of a triangle  e. Calculate the volume of a Right Circular Cylinder  f. Exit Program    Enter selection: |  |
| 2 | The user selects ‘a’ from the menu. The password generator opens and they are prompted to enter password length. | Enter selection: a  Password Length: |  |
| 3a | When prompted to enter password length, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Password Length:  Value must be a positive number. Please try again.  Password Length: |  |
| 3b | When prompted to enter password length, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Password Length: a  Value must be a positive number. Please try again.  Password Length: |  |
| 3c | When prompted to enter password length, the user input is 0. The user is informed the value cannot be 0 and is prompted to try again. | Password Length: a  Value cannot be zero. Please enter a positive integer.  Password Length: |  |
| 3d | When prompted to enter password length, the user input is 10. The user is prompted to enter the minimum number of uppercase letters. | Password Length: 10  Minimum Number of Uppercase Letters: |  |
| 4a | When prompted to enter the minimum number of uppercase letters, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Minimum Number of Uppercase Letters:  Value must be a positive number. Please try again.  Minimum Number of Uppercase Letters: |  |
| 4b | When prompted to enter the minimum number of uppercase letters, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Minimum Number of Uppercase Letters: a  Value must be a positive number. Please try again.  Minimum Number of Uppercase Letters: |  |
| 4c | The password length is 10. When prompted to enter the minimum number of uppercase letters, the user input is a 11. They are informed the value cannot be greater than the password length and prompted to try again. | Password Length: 10  Minimum Number of Uppercase Letters: 11  Value cannot be greater than the password length. Please try again.  Minimum Number of Uppercase Letters: |  |
| 4d | When prompted to enter the minimum number of uppercase letters, the user input is a 0. They are prompted to enter the minimum number of lowercase letters. | Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: |  |
| 4e | The password length is 10. When prompted to enter the minimum number of uppercase letters, the user input is a 1. They are prompted to enter the minimum number of lowercase letters. | Password Length: 10  Minimum Number of Uppercase Letters: 1  Minimum Number of Lowercase Letters: |  |
| 4f | The password length is 10. When prompted to enter the minimum number of uppercase letters, the user input is a 10. They are prompted to enter the minimum number of lowercase letters. | Password Length: 10  Minimum Number of Uppercase Letters: 10  Minimum Number of Lowercase Letters: |  |
| 5a | When prompted to enter the minimum number of lowercase letters, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Minimum Number of Lowercase Letters:  Value must be a positive number. Please try again.  Minimum Number of Lowercase Letters: |  |
| 5b | When prompted to enter the minimum number of lowercase letters, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Minimum Number of Lowercase Letters: a  Value must be a positive number. Please try again.  Minimum Number of Lowercase Letters: |  |
| 5c | The password length is 10. When prompted to enter the minimum number of lowercase letters, the user input is a 11. They are informed the value cannot be greater than the password length and prompted to try again. | Password Length: 10  Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: 11  Value cannot be greater than the password length. Please try again.  Minimum Number of Lowercase Letters: |  |
| 5d | When prompted to enter the minimum number of lowercase letters, the user input is a 0. They are prompted to enter the minimum number of digits. | Minimum Number of Lowercase Letters: 0  Minimum Number of Digits: |  |
| 5e | The password length is 10. When prompted to enter the minimum number of lowercase letters, the user input is a 1. They are prompted to enter the minimum number of digits. | Password Length: 10  Minimum Number of Uppercase Letters: 1  Minimum Number of Lowercase Letters: 1  Minimum Number of Digits: |  |
| 5f | The password length is 10. When prompted to enter the minimum number of lowercase letters, the user input is a 10. They are prompted to enter the minimum number of digits. | Password Length: 10  Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: 10  Minimum Number of Digits: |  |
| 6a | When prompted to enter the minimum number of digits, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Minimum Number of Digits:  Value must be a positive number. Please try again.  Minimum Number of Digits: |  |
| z |  |  |  |
| 6b | When prompted to enter the minimum number of digits, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Minimum Number of Digits: a  Value must be a positive number. Please try again.  Minimum Number of Digits: |  |
| 6c | The password length is 10. When prompted to enter the minimum number of digits, the user input is a 11. They are informed the value cannot be greater than the password length and prompted to try again. | Password Length: 10  Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: 0  Minimum Number of Digits: 11  Value cannot be greater than the password length. Please try again.  Minimum Number of Digits: |  |
| 6d | When prompted to enter the minimum number of digits, the user input is a 0. They are prompted to enter the minimum number of special characters. | Minimum Number of Digits: 0  Minimum Number of Special Characters: |  |
| 6e | The password length is 10. When prompted to enter the minimum number of digits, the user input is a 1. They are prompted to enter the minimum number of special characters. | Password Length: 10  Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: 0  Minimum Number of Digits: 1  Minimum Number of Special Characters: |  |
| 6f | The password length is 10. When prompted to enter the minimum number of digits, the user input is a 10. They are prompted to enter the minimum number of special characters. | Password Length: 10  Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: 0  Minimum Number of Digits: 10  Minimum Number of Special Characters: |  |
| 7a | When prompted to enter the minimum number of special characters, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Minimum Number of Special Characters:  Value must be a positive number. Please try again.  Minimum Number of Special Characters: |  |
| 7b | When prompted to enter the minimum number of special characters, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Minimum Number of Special Characters: a  Value must be a positive number. Please try again.  Minimum Number of Special Characters: |  |
| 7c | The password length is 10. When prompted to enter the minimum number of special characters, the user input is a 11. They are informed the value cannot be greater than the password length and prompted to try again. | Password Length: 10  Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: 0  Minimum Number of Digits: 0  Minimum Number of Special Characters: 11  Value cannot be greater than the password length. Please try again.  Minimum Number of Special Characters: |  |
| 7d | When prompted to enter the minimum number of special characters, the user input is a 0. A password is then generated. | Minimum Number of Special Characters: 0  Password Generated: \*password here\* |  |
| 7e | The password length is 10. When prompted to enter the minimum number of special characters, the user input is a 1. A password is then generated with at least 1 special character. | Password Length: 10  Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: 0  Minimum Number of Digits: 0  Minimum Number of Special Characters: 1  Password Generated: \*password here\* |  |
| 7f | The password length is 10. When prompted to enter the minimum number of special characters, the user input is a 10. A password is generated with all special characters. | Password Length: 10  Minimum Number of Uppercase Letters: 0  Minimum Number of Lowercase Letters: 0  Minimum Number of Digits: 0  Minimum Number of Special Characters: 10  Password Generated: \*special character password here\* |  |
| 8a | The user provides input for password length as 10, uppercase letters as 2, lowercase letters as 2, digits as 5, and special characters as 1. A 10-character password is generated with those specifications. | Password Length: 10  Minimum Number of Uppercase Letters: 2  Minimum Number of Lowercase Letters: 2  Minimum Number of Digits: 5  Minimum Number of Special Characters: 1  Password Generated: \*password here\* |  |
| 8b | The user provides input for password length as 10, uppercase letters as 2, lowercase letters as 2, digits as 5, and special characters as 2. They are informed that the sum of their constraints is greater than the password length and prompted to try again. | Password Length: 10  Minimum Number of Uppercase Letters: 2  Minimum Number of Lowercase Letters: 2  Minimum Number of Digits: 5  Minimum Number of Special Characters: 2  The sum of the minimum values provided is greater than the password length. Please try again.  Password Length: |  |
| 8c | The user provides input for password length as 20, uppercase letters as 8, lowercase letters as 7, digits as 0, and special characters as 5. A 20-character password is generated with those specifications. | Password Length: 20  Minimum Number of Uppercase Letters: 8  Minimum Number of Lowercase Letters: 7  Minimum Number of Digits: 0  Minimum Number of Special Characters: 5  Password Generated: \*password here\* |  |
| 8d | The user provides input for password length as 20, uppercase letters as 3, lowercase letters as 2, digits as 9, and special characters as 1. A 20-character password is generated with those specifications. | Password Length: 20  Minimum Number of Uppercase Letters: 3  Minimum Number of Lowercase Letters: 2  Minimum Number of Digits: 9  Minimum Number of Special Characters: 1  Password Generated: \*password here\* |  |
| 9 | The user selects ‘b’ from the menu. The percentage calculator opens and they are prompted to enter a positive integer numerator. | Enter selection: b  Enter a positive integer numerator: |  |
| 10a | When prompted to enter a numerator, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer numerator:  Value must be a positive number. Please try again.  Enter a positive integer numerator: |  |
| 10b | When prompted to enter numerator, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer numerator: a  Value must be a positive number. Please try again.  Enter a positive integer numerator: |  |
| 10c | When prompted to enter numerator, the user input is 0. They are then prompted to enter a positive integer denominator. | Enter a positive integer numerator: 0  Enter a positive integer denominator: |  |
| 10d | When prompted to enter numerator, the user input is 10. They are then prompted to enter a positive integer denominator. | Enter a positive integer numerator: 10  Enter a positive integer denominator: |  |
| 11a | When prompted to enter a denominator, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer denominator:  Value must be a positive number. Please try again.  Enter a positive integer denominator: |  |
| 11b | When prompted to enter denominator, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer denominator: a  Value must be a positive number. Please try again.  Enter a positive integer denominator: |  |
| 11c | When prompted to enter denominator, the user input is 0. They are informed that the value cannot be 0 and are prompted to try again. | Enter a positive integer denominator: 0  Value cannot be zero. Please enter a positive integer.  Enter a positive integer denominator: |  |
| 11d | When prompted to enter denominator, the user input is 10. They are then prompted to enter a positive integer precision. | Enter a positive integer denominator: 10  Enter a positive integer float precision: |  |
| 12a | When prompted to enter a precision, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer float precision:  Value must be a positive number. Please try again.  Enter a positive integer float precision: |  |
| 12b | When prompted to enter precision, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer float precision: a  Value must be a positive number. Please try again.  Enter a positive integer float precision: |  |
| 12c | The numerator and denominator are 10. When prompted to enter precision, the user input is 0. The percentage is calculated and printed with no decimal places. | Enter a positive integer numerator: 10  Enter a positive integer denominator: 10  Enter a positive integer float precision: 0  10 / 10 = 1% |  |
| 12d | The numerator and denominator are 10. When prompted to enter precision, the user input is 5. The percentage is calculated and printed with 5 decimal places. | Enter a positive integer numerator: 10  Enter a positive integer denominator: 10  Enter a positive integer float precision: 5  10 / 10 = 1.00000% |  |
| 13a | The user provides numerator 22, denominator 89, and precision 3. The percentage is printed with 3 decimal places. | Enter a positive integer numerator: 22  Enter a positive integer denominator: 89  Enter a positive integer float precision: 3  22 / 89 = 0.247% |  |
| 13b | The user provides numerator 89, denominator 22, and precision 3. The percentage is printed with 3 decimal places. | Enter a positive integer numerator: 89  Enter a positive integer denominator: 22  Enter a positive integer float precision: 3  89 / 22 = 4.045% |  |
| 14 | The user selects ‘c’ from the menu. The number of until July 4th, 2025 is printed to the console. | Enter selection: c  There are 399 days until July 4, 2025. |  |
| 15 | The user selects ‘d’ from the menu. The law of cosines calculator opens and they are prompted to enter the length of side a. | Enter selection: d  Enter a positive integer for the length of side a: |  |
| 16a | When prompted to enter the length of side a, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for the length of side a:  Value must be a positive number. Please try again.  Enter a positive integer for the length of side a: |  |
| 16b | When prompted to enter the length of side a, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for the length of side a: a  Value must be a positive number. Please try again.  Enter a positive integer for the length of side a: |  |
| 16c | When prompted to enter the length of side a, the user input is 0. They are informed that the value cannot be 0 and are prompted to try again. | Enter a positive integer for the length of side a: 0  Value cannot be zero. Please enter a positive integer.  Enter a positive integer for the length of side a: |  |
| 16d | When prompted to enter the length of side a, the user input is 10. They are then prompted to enter the length of side b. | Enter a positive integer the length of side a: 10  Enter a positive integer for the length of side b: |  |
| 17a | When prompted to enter the length of side b, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for the length of side b:  Value must be a positive number. Please try again.  Enter a positive integer for the length of side b: |  |
| 17b | When prompted to enter the length of side b, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for the length of side b: a  Value must be a positive number. Please try again.  Enter a positive integer for the length of side b: |  |
| 17c | When prompted to enter the length of side b, the user input is 0. They are informed that the value cannot be 0 and are prompted to try again. | Enter a positive integer for the length of side b: 0  Value cannot be zero. Please enter a positive integer.  Enter a positive integer for the length of side b: |  |
| 17d | When prompted to enter the length of side b, the user input is 10. They are then prompted to enter the angle of C. | Enter a positive integer the length of side b: 10  Enter a positive integer for the angle of C: |  |
| 18a | When prompted to enter the angle of C, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for the angle of C: Value must be a positive number. Please try again.  Enter a positive integer for the angle of C: |  |
| 18b | When prompted to enter the angle of C, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for the angle of C: a  Value must be a positive number. Please try again.  Enter a positive integer for the angle of C: |  |
| 18c | When prompted to enter the angle of C, the user input is 0. They are informed that the value cannot be 0 and are prompted to try again. | Enter a positive integer for the angle of C: 0  Value cannot be zero. Please enter a positive integer.  Enter a positive integer for the angle of C: |  |
| 18d | When prompted to enter the angle of C, the user input is 180. They are informed that the value must be less than180 and are prompted to try again. | Enter a positive integer for the angle of C: 180  Angle must be less than 180 degrees. Please try again.  Enter a positive integer for the angle of C: |  |
| 18e | When prompted to enter the angle of C, the user input is 20. The length of side c is calculated and printed to the console. | Enter a positive integer for the angle of C: 20  The length of side c is \*length\*. |  |
| 19a | The user inputs side a length as 11, side b length as 8, and angle C as 37. The length of side c is calculated and printed to the console. | Enter a positive integer for the length of side a: 11  Enter a positive integer for the length of side b: 8  Enter a positive integer for the angle of C: 37  The length of side c is 6.67. |  |
| 19b | The user inputs side a length as 10, side b length as 20, and angle C as 179. The length of side c is calculated and printed to the console. | Enter a positive integer for the length of side a: 10  Enter a positive integer for the length of side b: 20  Enter a positive integer for the angle of C: 179  The length of side c is 30.00. |  |
| 20 | The user selects ‘e’ from the menu. The right circle cylinder calculator opens and they are prompted to enter the radius of the cylinder. | Enter selection: e  Enter a positive integer for the radius of the cylinder: |  |
| 21a | When prompted to enter the radius, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for radius of the cylinder:  Value must be a positive number. Please try again.  Enter a positive integer for radius of the cylinder: |  |
| 21b | When prompted to enter the radius, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for radius of the cylinder: a  Value must be a positive number. Please try again.  Enter a positive integer for radius of the cylinder: |  |
| 21c | When prompted to enter the radius, the user input is 0. They are informed that the value cannot be 0 and are prompted to try again. | Enter a positive integer for radius of the cylinder: 0  Value cannot be zero. Please enter a positive integer.  Enter a positive integer for radius of the cylinder: |  |
| 21d | When prompted to enter the radius, the user input is 10. They are then prompted to enter the height of the cylinder. | Enter a positive integer for radius of the cylinder: 10  Enter a positive integer for height of the cylinder: |  |
| 22a | When prompted to enter the height, the user input is blank. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for height of the cylinder:  Value must be a positive number. Please try again.  Enter a positive integer for height of the cylinder: |  |
| 22b | When prompted to enter the height, the user input is a letter. The user is asked to enter a positive number and prompted to try again. | Enter a positive integer for height of the cylinder: a  Value must be a positive number. Please try again.  Enter a positive integer for height of the cylinder: |  |
| 22c | When prompted to enter the height, the user input is 0. They are informed that the value cannot be 0 and are prompted to try again. | Enter a positive integer for height of the cylinder: 0  Value cannot be zero. Please enter a positive integer.  Enter a positive integer for height of the cylinder: |  |
| 22d | When prompted to enter the radius height the user input is 10. The volume of the cylinder is calculated and printed to the console. | Enter a positive integer for height of the cylinder: 10  The volume of the cylinder is 3141.59265. |  |
| 23 | The user inputs radius of the cylinder as 5 and height of the cylinder as 7. The volume of the cylinder is calculated and printed to the console. | Enter a positive integer for radius of the cylinder: 5  Enter a positive integer for height of the cylinder: 7  The volume of the cylinder is 549.77871. |  |
| 24 | The user selects ‘f’ from the menu. An exiting and thank you message is displayed and the application exits. | Enter selection: f  Exiting program. Thanks for using the Python SDEV300 Lab 2 Application.  Process finished with exit code 0 |  |
| 25 | The user selects ‘g’ from the menu. They are informed that their selection is invalid and they must make a selection from a to f. They are prompted to try again. | Enter selection: g  Invalid menu selection. Please enter a valid option (a - f).  What would you like to do today?  a. Generate a Secure Password  b. Calculate and format a percentage  c. How many days from today until July 4, 2025?  d. Use the Law of Cosines to calculate the leg of a triangle  e. Calculate the volume of a Right Circular Cylinder  f. Exit Program    Enter selection: |  |

**Pylint Report**

I achieved 10/10 Pylint rating.

A screenshot of a computer

Description automatically generated