Test cases for C# solution. Above each picture are the tested inputs in the same order they appear in the picture.

Name:

First name and last name are handled identically, so they are not tested separately here.

- Invalid
 - o EOT
 - Empty
 - o sally!? (invalid chars)
 - o bob fred (multiple regex matches)
 - !!!sally!!! (regex start and end anchors)
 - o alice (extra whitespace)

```
First name:
Enter 1 to 50 characters.
Uppercase and lowercase latin letters, apostrophes, and hyphens are allowed:
Invalid input. Try again.
Enter 1 to 50 characters.
Uppercase and lowercase latin letters, apostrophes, and hyphens are allowed:
Invalid input. Try again.
Enter 1 to 50 characters.
Uppercase and lowercase latin letters, apostrophes, and hyphens are allowed:
sa11y!?
Invalid input. Try again.
Enter 1 to 50 characters.
Uppercase and lowercase latin letters, apostrophes, and hyphens are allowed:
Invalid input. Try again.
Enter 1 to 50 characters.
Uppercase and lowercase latin letters, apostrophes, and hyphens are allowed:
!!!sally!!!
Invalid input. Try again.
Enter 1 to 50 characters.
Uppercase and lowercase latin letters, apostrophes, and hyphens are allowed:
Invalid input. Try again.
Enter 1 to 50 characters.
Uppercase and lowercase latin letters, apostrophes, and hyphens are allowed:
Invalid input. Try again.
```

- o a (min length)
- Alice-Bob (valid length and chars general)


```
Name:
First name:
Enter 1 to 50 characters.
Uppercase and lowercase latin letters, apostrophes, and hyphens are allowed:
Alice-Bob
Last name:
```

Ints:

- Invalid
 - \circ EOT
 - o Empty
 - o 123a (invalid chars)
 - o 12,345 (invalid chars comma)
 - o 123 123 (multiple matches)
 - o aa123bb (regex start and end anchors)
 - o 123 (extra whitespace)
 - o -2147483649 (below min value)
 - o 2147483648 (above max value)

```
2 integers:
First integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
^Z
Invalid input. Try again.
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
Invalid input. Try again.
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
123a
Invalid input. Try again.
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
12,345
Invalid input. Try again.
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
123 123
Invalid input. Try again.
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
aa123bb
Invalid input. Try again.
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
  123
Second integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
-2147483649
Invalid input. Try again.
Enter one integer in the range [-2147483648, 2147483647].
```

```
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
2147483648
Invalid input. Try again.
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
```

- -2147483648 (min value)
- o 2147483647 (max value)
- \circ 0 (zero)
- o +0 (positive zero)
- -0 (negative zero)
- o 0019 (leading zeros)
- o 30380 (positive general)
- o -25740 (negative general)

```
2 integers:
First integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
2147483648
Second integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
2147483647
Name of an existing input file of at most 130048 bytes to read from:
```

```
2 integers:
First integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
Second integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
+0
Name of an existing input file of at most 130048 bytes to read from:
```

```
2 integers:
First integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
-0
Second integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
0019
Name of an existing input file of at most 130048 bytes to read from:
2 integers:
First integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
30380
Second integer:
Enter one integer in the range [-2147483648, 2147483647].
The integer can include a sign (+ or -) and cannot include commas:
25740
Name of an existing input file of at most 130048 bytes to read from:
```

Sum and Product:

- Invalid
 - None (ints are already individually validated, and no overflow occurs)
- Valid
 - 123 and 0 (add and multiply nonzero and zero)
 - o 0 and 123 (add and multiply zero and nonzero)
 - o 0 and 0 (add and multiply both zero)
 - o -2147483648 and -2147483648 (add and multiply both most negative)
 - o 2147483647 and 2147483647 (add and multiply both most positive)
 - 2147483647 and -2147483648 (add and multiply most positive and most negative)
 - -2147483648 and 2147483647 (add and multiply most negative and most positive)
 - o 123 and -456 (add and multiply positive and negative general)
 - -123 and 456 (add and multiply It negative and positive general)
 - o 123 and 456 (add and multiply positive and positive general)
 - o -123 and -456 (add and multiply negative and negative general)

First integer: 123	First integer: 0	First integer: 0	First integer: -2147483648
Second integer:	Second integer:	Second integer:	Second integer:
0	123		-2147483648
Sum:	Sum:	Sum:	Sum:
123	123	0	-4294967296
Product:	Product:	Product:	Product:
0	0	0	4611686018427387904

First integer: 2147483647	First integer: 2147483647	First integer: -2147483648
Second integer:	Second integer:	Second integer:
2147483647	-2147483648	2147483647
Sum:	Sum:	Sum:
4294967294	-1	-1
Product:	Product:	Product:
4611686014132420609	-4611686016279904256	-4611686016279904256

First integer:	First integer:	First integer:	First integer:
123	-456	123	-123
Second integer:	Second integer:	Second integer:	Second integer:
-456	123	456	-456
Sum:	Sum:	Sum:	Sum:
-333	-333	579	-579
Product:	Product:	Product:	Product:
-56088	-56088	56088	56088

Input File:

- Invalid
 - o EOT
 - o Empty
 - o afile\$.txt (invalid chars)
 - file.txt file.txt (multiple matches)
 - !!!file.txt@@@ (regex start and end anchors)
 - file.txt (extra whitespace)
 - file.2txt (wrong extension)
 - file (no extension)
 - adirectory.txt (directory)
 - ../file.txt (accessing file in other directory)
 - file2.txt (file doesn't exist)
 - .txt (too short)

 - o a.txt (file too large)

```
Name of an existing input file of at most 130048 bytes to read from:
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
afile$.txt
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
file.txt file.txt
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
!!!file.txt@@@
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
   file.txt
Invalid input. Try again.
```

Enter the name of a plain text file in the current directory.

No parts of the filepath other than the name of the file may be specified.

The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt file.2txt

Invalid input. Try again.

Enter the name of a plain text file in the current directory.

No parts of the filepath other than the name of the file may be specified.

The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt file

Invalid input. Try again.

Enter the name of a plain text file in the current directory.

Name of an existing input file of at most 130048 bytes to read from: Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt adirectory.txt

The provided filename refers to a directory. Invalid input. Try again.

Enter the name of a plain text file in the current directory.

Enter the name of a plain text file in the current directory.

No parts of the filepath other than the name of the file may be specified.

The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt ../file.txt

Invalid input. Try again.

Enter the name of a plain text file in the current directory.

No parts of the filepath other than the name of the file may be specified.

The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt file2.txt

The specified file does not exist or you do not have permission to access it. Invalid input. Try again.

Enter the name of a plain text file in the current directory.

No parts of the filepath other than the name of the file may be specified.

The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt .txt

Invalid input. Try again.

Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, a.txt

The specified file exceeds 130048 bytes. Invalid input. Try again.

Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores,

Valid

- o a.txt (min length)
- file.txt (valid name and contents general case)

Name of an existing input file of at most 130048 bytes to read from: Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt a.txt

Password:

Input file name: a.txt Input file contents: This is line 0 This is line 1 This is line 2 This is line 3 This is line 4 This is line 5 This is line 6 This is line 7 This is line 8 This is line 9 This is line 10 This is line 11 This is line 12

Password:

```
Input file name:
Input file contents:
This is line 0
This is line 1
This is line 2
This is line 3
This is line 4
This is line 5
This is line 6
This is line 7
This is line 8
This is line 9
This is line 10
This is line 11
This is line 12
```

Name of an existing input file of at most 130048 bytes to read from: Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt file.txt

Password:

```
Input file name:
file.txt
Input file contents:
This is line 0
This is line 1
This is line 2
This is line 3
This is line 4
This is line 5
This is line 6
This is line 7
This is line 8
This is line 9
This is line 10
This is line 11
This is line 12
```

Password:

Retyped password uses the same regex as the original password, so tests validating the regex are not repeated for the retyped password.

Original

- Invalid
 - o EOT
 - o Empty
 - o abcABC123![/ (invalid chars)
 - o abcABC123! abcABC123! (multiple matches)
 - ///abcABC123!\\\ (regex start and end anchors)
 - o abcABC123! (extra whitespace)
 - ABCABC123! (no lowercase)
 - o abcabc123! (no uppercase)
 - o abcABCABC! (no number)
 - o abcABC1234 (no special character)
 - abcABC12! (too short)

```
Passord:
Inter a passord including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: "'@#$50%*()_=+-).
The passord such that shows the characters.

Invalid input. Try again.

Enter a passord including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: "'@#$50%*()_=+-).

The passord and multiple of each of these but any not contain any characters that are not listed above.

Invalid input. Try again.

Enter a passord including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: "'@#$50%*()_=+-).

The passord and contain multiple of each of these but any not contain any characters that are not listed above.

Here a passord including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: "'@#$50%*()_=+-).

The passord any contain multiple of each of these but any not contain any characters that are not listed above.

Machacters and the at least 10 and at most 50 characters.

Machacters and the action of the following: "'@#$50%*()_=+-).

The passord any contain multiple of each of these but any not contain any characters that are not listed above.

Machacters and the action of the following: "'@#$50%*()_=+-).

The passord any contain multiple of each of these but any not contain any characters that are not listed above.

Machacters and the action of the following: "'@#$50%*()_=+-).

The passord any contain multiple of each of these but any not contain any characters that are not listed above.

Machacters and the action of the following: "'@#$50%*()_=+-).

The passord any contain multiple of each of these but any not contain any characters that are not listed above.

Machacters and the action of the following: "'@#$50%*()_=+-).

The passord any contain multiple of each of these but any not contain any characters that are not listed above.

Machac
```

```
nter a password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~'!@#$%^&*()_=+-).
he password must be at least 10 and at most 50 characters.
bcabc123!
nter a password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~`!@#$%^&*()_=+-).
he password may contain multiple of each of these but may not contain any characters that are not listed above.
he ABCABC!
btABCABC!
nvalid input. Try again.
nvalid input. Try again.
nter a password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~ !@#$%^&*()_=+-).
he password may contain multiple of each of these but may not contain any characters that are not listed above.
he password must be at least 10 and at most 50 characters.
bcABC1234
nter a password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~'!@#$%^&*()_=+-).
he password may contain multiple of each of these but may not contain any characters that are not listed above.
he password must be at least 10 and at most 50 characters.
bcABC12!
ter a password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~'!@#$%^&*()_=+-)
```

- abcABC123! (min length)
- !@#a\$bcAdBC1D234 (valid chars and length general case)

me of a currently nonexistent output file to write to

of a currently nonexistent output file to write to

ter a password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~`!@#\$%^&*()_=+-).

The password may contain multiple of each of these but may not contain any characters that are not listed above.

The password must be at least 10 and at most 50 characters.

currently nonexistent output file to write to

Retyped

Invalid

o Original: abcABC123! Retyped: abcABC123 (fail regex test and do not reach hash validation)

o Original: abcABC123! Retyped: abcABCl2!3 (pass regex test but fail hash validation)

o:
password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~`!@#\$%^&*()_=++).
sword may contain multiple of each of these but may not contain any characters that are not listed above.
sword must be at least 10 and at most 50 characters.

nvalid input. Try again.

type your password:

assword: nter a password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~`!@#\$%^&*()_=+-). he password may contain multiple of each of these but may not contain any characters that are not listed above. bc.ABC123! bc.ABC123!

etype your password: bcABC12!3

nvalid input. Try again.

Retype your password:

Valid

Original: abcABC123! Retyped: abcABC123! 0 (pass regex for chars and length and pass hash validation)

assword:

Inter a password including at least one uppercase latin letter, lowercase latin letter, decimal digit, and special character (any of the following: ~'!@#\$%^&*()_=+-).

The password must be at least 10 and at most 50 characters.

bcABC123!

etype your password: ocABC123!

Output File:

Note: No possible issue with specifying the same file as was specified for input, since the output file cannot overwrite any other file (and the input file is read in while it is being validated).

- Invalid
 - o EOT
 - o Empty
 - o afile\$.txt (invalid chars)
 - o file.txt file.txt (multiple matches)
 - !!!file.txt@@@ (regex start and end anchors)
 - o file.txt (extra whitespace)
 - file.2txt (wrong extension)
 - o file (no extension)
 - adirectory.txt (directory)
 - o ../file.txt (accessing file in other directory)
 - o file.txt (file already exists)
 - .txt (too short)

Name of a currently nonexistent output file to write to: Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt Invalid input. Try again. Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt Invalid input. Try again. Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt Name of a currently nonexistent output file to write to: Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt afile\$.txt Invalid input. Try again. Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt file.txt file.txt Invalid input. Try again. Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt !!!file.txtaaa Invalid input. Try again. Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt file.txt Invalid input. Try again. Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt file.2txt Invalid input. Try again. Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt

Invalid input. Try again.

```
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
adirectory.txt
The provided filename refers to a directory.
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
../file.txt
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
file.txt
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
.txt
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
Invalid input. Try again.
Enter the name of a plain text file in the current directory.
No parts of the filepath other than the name of the file may be specified.
The filename may include 1-50 alphanumeric characters, periods, underscores, and hyphens, followed by .txt
```

- o a.txt (min length)
- file.txt (valid name and contents general case)

Name of a currently nonexistent output file to write to: Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, ar

```
≡ a.txt
         ×
defendcs > ≡ a.txt
 1 First name:
  4 Last name:
    First integer:
    Second integer:
     Sum:
      Product:
    Input file name:
     output.txt
     Input file contents:
     First name:
     AJ
    Last name:
 30
    First integer:
     2142321
 35 Second integer:
     4213
    Sum:
 39 2146534
     Product:
     9025598373
     Input file name:
    test.txt
     Input file contents:
      This tis ates tfhdal;khfea fdsafda
      IDAH JKALHFe tbets
```

```
1 First name:
   а
    Last name:
    First integer:
   Second integer:
    Sum:
    Product:
21 Input file name:
    output.txt
   Input file contents:
    First name:
    ΑЛ
   Last name:
   First integer:
   2142321
    Second integer:
    4213
    2146534
   Product:
    9025598373
    Input file name:
    test.txt
    Input file contents:
    This tis ates tfhdal;khfea fdsafda
52 IDAH JKALHFe tbets
```

```
Retype your password: Password!1
```

Name of a currently nonexistent output file to write to: Enter the name of a plain text file in the current directory. No parts of the filepath other than the name of the file may be specified. The filename may include 1-50 alphanumeric characters, periods, underscores, an file.txt

← ♠ /mnt/c/U/a/OneDrive /Sc/Autumn 2022/TCSS 483/Defend Code/defendcs

```
≡ file.txt
          ×
defendcs > 

file.txt
     First integer:
    Second integer:
 14 Sum:
     0
     Product:
    Input file name:
 22 output.txt
     Input file contents:
     First name:
     ΑЛ
    Last name:
     First integer:
    2142321
     Second integer:
     4213
      2146534
41 Product:
     9025598373
     Input file name:
     test.txt
 48 Input file contents:
    This tis ates tfhdal;khfea fdsafda
     IDAH JKALHFe tbets
```