A screenshot of a computer

AI-generated content may be incorrect.

please can you create a test case in @test\_ngram\_models.py to test @ngram\_analyzer.py

based on teh requirement in @ngram.md. Please do not change the DB structure in @typing\_data.db or the database setup in @database\_manager. You can use the MCP addin typing\_sqlite to determine the database structure

Please use a fixture to create a temporary database and temporary @database\_manager and use the Initialize\_tables feature to initialize the dB.  
Please use a fixture to create a test session within this db, and return this as a PracticeSession object. There is a good example of a practice session in the database – you can use the MCP typing\_sqlite to query it

Finally – please create a list of keystroke objects with 2 keystrokes as above

The first test case just asserts that we have a practice session with a valid session id and that our keystroke list has 2 entries

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please can you create a test case in @test\_ngram\_models.py to test @ngram\_analyzer.py

based on teh requirement in @ngram.md. Please do not change the DB structure in @typing\_data.db or the database setup in @database\_manager. You can use the MCP addin typing\_sqlite to determine the database structure

start with defining session ID like the attached screenshot:  
Our first test case is for 1 keystroke - just the letter T  
  
There should be zero ngrams identified of any length

Please can you add another test case in @test\_ngram\_models.py to test @ngram\_analyzer.py - very similar to the one above   
- name: 2 keystroke no errors  
- two keystrokes - T and h with no errors  
- time\_since\_previous on T is 0, time since previous on h is 500ms  
  
The ngram speed for this should be 500mg, with only one ngram via the class. in the DB should be one entry in ngram\_speed and zero entries in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures  
  
- name: 2 keystroke – error at 1

Sitation: - two keystrokes - T and h expected. However Gh was typed and keystroke number 1 is marked as is\_error = true

* time\_since\_previous on keystroke 1 is 0 with is\_error = true
* time since previous on keystroke 2 is 500ms,

**Models:**

* There should be 1 ngrams of length 2, containing “Gh” with a time of 500ms and is\_error = true

**Database:**

* One row in ngram\_errors as above
* Zero rows in ngram\_speed  
    
  please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models.py to test @ngram\_analyzer.py - very similar to the one above   
  
- name: 3 keystroke no errors - three keystrokes - T and h and e with no errors - time\_since\_previous on T is 0, time since previous on h is 500ms, time since previous on e is 1000ms   
There should be 3 ngrams - two of length 2, and one of length 3  
- Th with a time of 500ms  
- he with a time of 1000ms  
- The with a time of 750ms  
  
please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures  
  
- name: 3 keystroke – error at 1

Situation: - three keystrokes - T and h and e expected. However Ghe was typed and keystroke number 1 is marked as is\_error = true

* Keystroke 1: keystroke: G; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 1: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: true
* Keystroke 1: keystroke: e; Expected: e; Time\_since\_previous: 1000 ms; isError: false

In the object there should be 3 ngrams:

* One of length 2
  + “he”, no error, time is 1000ms
* Zero of length 3

In database:

* One row in ngram\_speed
* Zero rows in ngram\_errors
  + Zero rows

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures  
  
- name: 3 keystroke – error at 2

Situation: - three keystrokes - T and h and e expected. However Tbe was typed and keystroke number 2 is marked as is\_error = true

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 1: keystroke: b; Expected: h; Time\_since\_previous: 500 ms; isError: true
* Keystroke 1: keystroke: e; Expected: e; Time\_since\_previous: 1000 ms; isError: false

In the object there shall be multiple ngrams:

* one of length 2
  + “Th”, error, time is 500ms
* Zero of length 3
* Zero of length 4

In database:

* No rows in ngram\_speed
* One row in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures  
- name: 3 keystroke – error at 3

Sitation: - three keystrokes - T and h and e expected. However Thd was typed

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 1: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: false
* Keystroke 1: keystroke: d; Expected: e; Time\_since\_previous: 1000 ms; isError: true

In the object There should be multiple ngrams:

* Three of length 2
  + “Th”, no error, total time is 500ms. Avg is 500
  + “he”, error, total time is 1000ms. Avg is 1000 ms
* One of length 3
  + “The”, error, total time is 1500ms. Average is 750 ms
* 0 of length 4

In database:

* One rows in ngram\_speed
* Two row in ngram\_errors
  + One is length 2, error, text is he, time is 1000ms
  + One is length 3, error, text is The, time is 750

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p2.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures, Please use @test\_three\_keystrokes\_no\_errors and @test\_two\_keystrokes\_no\_errors as a template

- name: 4 keystroke – no errors

Sitation: - target text: “Then”

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: false
* Keystroke 3: keystroke: e; Expected: e; Time\_since\_previous: 1000 ms; isError: false
* Keystroke 4: keystroke: n; Expected: n; Time\_since\_previous: 300 ms; isError: false

In the object There should be the following ngrams:

* Three of length 2
  + “Th”, no error, total time is 500ms. Avg is 500/1
  + “he”, no error, total time is 1000ms. Avg is 1000/1
  + “en”, no error, total time is 300ms. Avg is 300/1
* Two of length 3
  + “The”, no error, total time is 1500ms. Avg is 1500/2
  + “hen”, no error, total time is 1300ms. Avg is 1300/2
* 1 of length 4
  + “Then”, no error, total time is 1800 ms. Avg is 1800/3

In database:

* 6 rows in ngram\_speed
* Zero rows in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p2.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures. Please use @test\_three\_keystrokes\_error\_at\_first and @test\_two\_keystrokes\_error\_at\_first as a template

- name: 4 keystrokes – error at first

Situation: - target text: “Then”

* Keystroke 1: keystroke: G; Expected: T; Time\_since\_previous: 0; isError: true
* Keystroke 2: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: false
* Keystroke 3: keystroke: e; Expected: e; Time\_since\_previous: 1000 ms; isError: false
* Keystroke 4: keystroke: n; Expected: n; Time\_since\_previous: 300 ms; isError: false

In the object There should be 3 ngrams:

* Three of length 2
  + “he”, no error, total time is 1000ms, avg is 1000/1
  + “en”, no error, total time is 300ms, avg is 300/1
* Two of length 3
  + “hen”, no error, total time is 1300ms, avg is 1300/2

In database:

* Three rows in ngram\_speed
* Zero rows in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p2.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: four keystrokes – error at second

Sitation: - target text: “Then”

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: g; Expected: h; Time\_since\_previous: 500 ms; isError: true
* Keystroke 3: keystroke: e; Expected: e; Time\_since\_previous: 1000 ms; isError: false
* Keystroke 4: keystroke: n; Expected: n; Time\_since\_previous: 300 ms; isError: false

In the object There should be multiple ngrams:

* Two of length 2
  + “Th”, error, total time is 500ms. Avg is 500/1
  + “en”, no error, total time is 300ms. Avg is 300/1
* zero of length 3
* zero of length 4

In database:

* one rows in ngram\_speed
* One row in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p2.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: four keystrokes – error at third

Sitation: - target text: “Then”

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: false
* Keystroke 3: keystroke: g; Expected: e; Time\_since\_previous: 1000 ms; isError: true
* Keystroke 4: keystroke: n; Expected: n; Time\_since\_previous: 300 ms; isError: false

In the object There should be multiple ngrams:

* Two of length 2
  + “Th”, no error, total time is 500ms. Avg is 500/1
  + “he”, error, total time is 1000ms. Avg is 1000/1
* One of length 3
  + “The”, error, total time is 1500ms. Avg is 1500/2
* zero of length 4

In database:

* one rows in ngram\_speed
* two rows in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p2.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: four keystrokes – error at fourth

Sitation: - target text: “Then”

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: false
* Keystroke 3: keystroke: e; Expected: e; Time\_since\_previous: 1000 ms; isError: false
* Keystroke 4: keystroke: b; Expected: n; Time\_since\_previous: 300 ms; isError: true

In the object There should be multiple ngrams:

* Three of length 2
  + “Th”, no error, total time is 500ms. Avg is 500/1
  + “he”, no error, total time is 1000ms. Avg is 1000/1
  + “en”, error, total time is 300ms. Avg is 300/1
* Two of length 3
  + “The”, no error, total time is 1500ms. Avg is 1500/2
  + “hen”, error, total time is 1300ms. Avg is 1300/2
* 1 of length 4
  + “Then”, error, total time is 1800 ms. Avg is 1800/3

In database:

* Three rows in ngram\_speed
* three rows in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p3.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: 5 keystroke – backspace at 1 with mistake

Sitation: - target text: “Then”

* Keystroke 1: keystroke: G; Expected: T; Time\_since\_previous: 0; isError: true
* Keystroke 2: keystroke: backspace; Expected: h; Time\_since\_previous: 500 ms; isError: true
* Keystroke 3: keystroke: T; Expected: e; Time\_since\_previous: 1000 ms; isError: false
* Keystroke 4: keystroke: h; Expected: n; Time\_since\_previous: 300 ms; isError: false
* Keystroke 5: keystroke: e; Expected: e; Time\_since\_previous: 170 ms; isError: false

In the object There should be multiple ngrams:

* length 2
  + “Th”, no error, total time is 300 ms; avg time is 300ms/1
  + “he”, no error, total time is 170 ms; avg time is 170ms/1
* Length 3:
  + “The”, no error, total time is 470 ms; avg time is 470/2
* Length 4: None
* Length 5: None

In database:

* 3 row in ngram\_speed
* Zero row in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p3.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: 5 keystroke – backspace at 2 with mistake

Sitation: - target text: “Then”

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: g; Expected: h; Time\_since\_previous: 300 ms; isError: true
* Keystroke 3: keystroke: backspace; Expected: h; Time\_since\_previous: 500 ms; isError: true
* Keystroke 4: keystroke: h; Expected: h; Time\_since\_previous: 300 ms; isError: false
* Keystroke 5: keystroke: e; Expected: e; Time\_since\_previous: 170 ms; isError: false

In the object There should be multiple ngrams:

* length 2
  + “Th”, error, total time is 300ms; avg time is 300ms/1
  + “he”, no error, total time is 170 ms; avg time is 170ms/1
* Length 3: None
* Length 4: None
* Length 5: None

In database:

* 1 row in ngram\_speed
* 1 row in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p3.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: 5 keystroke – backspace at 3 with no mistake

Sitation: - target text: “Then”

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: false
* Keystroke 3: keystroke: backspace; Expected: e; Time\_since\_previous: 1000 ms; isError: true
* Keystroke 4: keystroke: h; Expected: n; Time\_since\_previous: 300 ms; isError: false
* Keystroke 5: keystroke: e; Expected: e; Time\_since\_previous: 170 ms; isError: false

In the object There should be multiple ngrams:

* length 2
  + “Th”, no error, total time is 500 ms; avg time is 500ms/1
  + “he”, no error, total time is 170 ms; avg time is 170ms/1
* Length 3: None
* Length 4: None
* Length 5: None

In database:

* 2 row in ngram\_speed
* zero row in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p3.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: 5 keystroke – space at 3

Sitation: - target text: “Th en”

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: false
* Keystroke 3: keystroke: space; Expected: space; Time\_since\_previous: 1000 ms; isError: false
* Keystroke 4: keystroke: e; Expected: e; Time\_since\_previous: 300 ms; isError: false
* Keystroke 5: keystroke: n; Expected: n; Time\_since\_previous: 170 ms; isError: false

In the object There should be multiple ngrams:

* length 2
  + “Th”, no error, total time is 500 ms; avg time is 500ms/1
  + “en”, no error, total time is 170ms; avg time is 170/1
* Length 3: None
* Length 4: None
* Length 5: None

In database:

* 2 row in ngram\_speed
* Zero row in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p3.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: 5 keystroke – space at 2

Sitation: - target text: “1 cat”

* Keystroke 1: keystroke: 1; Expected: 1; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: space; Expected: space; Time\_since\_previous: 500 ms; isError: false
* Keystroke 3: keystroke: c; Expected: c; Time\_since\_previous: 1000 ms; isError: false
* Keystroke 4: keystroke: a; Expected: a; Time\_since\_previous: 300 ms; isError: false
* Keystroke 5: keystroke: t; Expected: t; Time\_since\_previous: 170 ms; isError: false

In the object There should be multiple ngrams:

* length 2
  + “ca”, no error, total time is 300 ms; avg time is 300ms/1
  + “at”, no error, total time is 170ms; avg time is 170/1
* Length 3: None
  + “cat”, no error, total time is 470 ms; avg time is 470ms/2
* Length 4: None
* Length 5: None

In database:

* 2 row in ngram\_speed
* Zero row in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?

Please can you add another test case in @test\_ngram\_models\_p3.py to test @ngram\_analyzer.py - very similar to the one above. Please use the MCP addin typing\_sqlite to check and change DB schema / table structures

- name: 5 keystroke – space at 5

Sitation: - target text: “Then ”

* Keystroke 1: keystroke: T; Expected: T; Time\_since\_previous: 0; isError: false
* Keystroke 2: keystroke: h; Expected: h; Time\_since\_previous: 500 ms; isError: false
* Keystroke 3: keystroke: e; Expected: e; Time\_since\_previous: 1000 ms; isError: false
* Keystroke 4: keystroke: n; Expected: n; Time\_since\_previous: 300 ms; isError: false
* Keystroke 5: keystroke: space; Expected: space; Time\_since\_previous: 170 ms; isError: false

In the object There should be multiple ngrams:

* length 2
  + “Th”, no error, total time is 500 ms; avg time is 500ms/1
  + “he”, no error, total time is 1000 ms; avg time is 1000/1
  + “en”, no error, total time is 300ms; avg time is 300/1
* Length 3:
  + “The”, no error, total time is 1500 ms; avg time is 1500/2
  + “hen”, no error, total time is 1300 ms; avg time is 1300 ms/2
* Length 4:
  + “Then”, no error, total time is 1800 ms; avg time is 1800/3
* Length 5: None

In database:

* 6 row in ngram\_speed
* Zero row in ngram\_errors

please validate the timing of the ngrams, the count, and the length - both via the object, and via the DB?