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# supermemo2 3.0.1

Latest version

```
pip install supermemo2
```

Released: Jun 22, 2024

Implemented the SM-2 algorithm for spaced repetition learning.

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Project description

Release history

Download files

**Verified details**

*These details have been verified by PyPI*

**Maintainers**

alankan886

**Unverified details**

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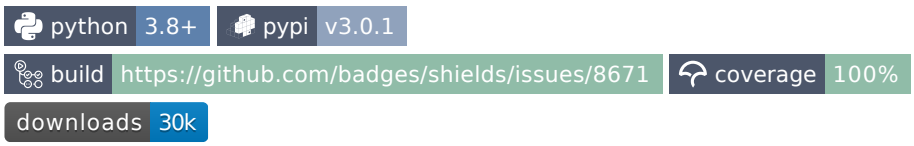
**Meta**

- **License:** MIT License (MIT)
- **Author:** Alan Kan
- spaced-repetition , SM-2 , SuperMemo , Python

**Classifiers**

**Development Status**

# SuperMemo2




A package that implemented the spaced repetition algorithm SM-2 for you to quickly calculate your next review date for whatever you are learning.

📌 **Note:** The algorithm SM-2 doesn't equal to the computer implementation SuperMemo2. In fact, the 3 earliest implementations (SuperMemo1, SuperMemo2 and SuperMemo3) all used algorithm SM-2. I didn't notice that when I first published the package on PyPI, and I can't change the package name.

📦 PyPI page

## Table of Contents



## Motivation

The goal was to have an efficient way to calculate the next review date for studying/learning. Removes the burden of remembering the algorithm, equations, and math from the users.

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**Intended Audience**
- Education

**License**
- OSI Approved :: MIT License

**Operating System**
- OS Independent

**Programming Language**
- Python
- Python :: 3

Report project as malware

## Package Install

Install and upate the package using pip:

```
pip install -U supermemo2
```

## To Play Around with the Code

Download the code:

```
git clone https://github.com/alankan886/SuperMemo2.git
```

Install dependencies to run the code:

```
pip install -r requirements.txt
```

supermemo2 supports Python 3.8+

## A Simple Example

```
from supermemo2 import first_review, review

# first review
# using quality=4 as an example, read below for what each value fr
# review date would default to datetime.utcnow() (UTC timezone) if
first_review = first_review(4, "2024-06-22")
# first_review prints { "easiness": 2.36, "interval": 1, "repetiti

# second review
second_review = review(4, first_review["easiness"], first_review["
# or just unpack the first review dictionary
second_review = review(4, **first_review)
# second_review prints similar to example above.
```

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📣 Calculates the review date of the task following the SM-2 algorithm.
📣 The first_review method to calculate the review date at ease without having to know the initial values.

## What is SM-2?

🎥 If you are curious of what spaced repetition is, check this short video out.

📌 A longer but interactive article on spaced repetition learning.

📎 The SM-2 Algorithm

### What are the "values"?

The values are the:

- Quality: The quality of recalling the answer from a scale of 0 to 5.
  - 5: perfect response.
  - 4: correct response after a hesitation.
  - 3: correct response recalled with serious difficulty.
  - 2: incorrect response; where the correct one seemed easy to recall.
  - 1: incorrect response; the correct one remembered.
  - 0: complete blackout.
- Easiness: The easiness factor, a multipler that affects the size of the interval, determine by the quality of the recall.
- Interval: The gap/space between your next review.
- Repetitions: The count of correct response (quality >= 3) you have in a row.

## Code Reference

**first_review**( quality, review_datetime=None**)**

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dictionary containing the new values.

**Parameters:**

- quality (int) - the recall quality of the review.
- review_datetime (str or datetime.datetime) - optional parameter, the datetime in ISO format up to seconds in UTC timezone of the review.

**Returns:** dictionary containing values like quality, easiness, interval, repetitions and review_datetime.

**Return Type:** Dict

**Usage:**

```
from supermemo2 import first_review
# using default datetime.utcnow() if you just reviewed it
first_review(3)

# providing string date in Year-Month-Day format
first_review(3, "2024-06-22")

# providing date object date
from datetime import datetime
d = datetime(2024, 1, 1)
first_review(3, d)
```

**review(** quality, easiness, interval, repetitions, review_datetime=None **)**

Calcualtes the next review date based on previous values, and returns a dictionary containing the new values.

**Parameters:**

- quality (int) - the recall quality of the review.
- easiness (float) - the easiness determines the interval.
- interval (int) - the interval between the latest review date and the next review date.
- repetitions (int) - the count of consecutive reviews with quality

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the datetime in ISO format up to seconds in UTC timezone of the review.

**Returns:** dictionary containing values like quality, easiness, interval, repetitions and review_datetime.

**Return Type:** Dict

**Usage:**

```
from supermemo2 import first_review, review
# using previous values from first_review call
r = first_review(3)

# using default datetime.utcnow() if you just reviewed it
review(3, r["easiness"], r["interval"], r["repetitions"])

# providing review_datetime from previous review
review(3, r["easiness"], r["interval"], r["repetitions"], r["revie

# providing string review_datetime
review(3, r["easiness"], r["interval"], r["repetitions"], "2024-01

# providing datetime object review_datetime
from datetime import datetime
d = datetime(2024, 1, 1)
review(3, r["easiness"], r["interval"], r["repetitions"], d)
```

## Testing

Assuming you dowloaded the code and installed requirements.

### Run the tests

```
pytest tests/
```

### Check test coverages

```
pytest --cov
```

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## Changelog

3.0.1 (2024-06-22): Minor changes, Update recommended

- Forgot to update some code and tests from review_date to review_datetime, the returned dictionary was review_date instead review_datetime.

3.0.0 (2024-06-22): Major changes/rebuild, Update recommended

- Rewrote the code to remove the class structure, simplfying the code and usability.
- Update to provide datetime instead of just date, more specific with when to review.

2.0.0 (2021-03-28): Major changes/rebuild, Update recommended

- Rebuilt and simplfied the package.

1.0.3 (2021-01-30): Minor bug fix, Update recommended

- Re-evaluate the default date argument to first_review() on each call.

1.0.2 (2021-01-18): Major and Minor bug fix, Update recommended

- Add required attrs package version to setup.py.
- Allow users to access SMTwo model.
- Fix E-Factor calculation when q < 3.

1.0.1 (2021-01-02): Fix tests, update README and add Github actions, Update not required

- Add missing assertions to test_api.py.
- Update README badges and fix format.
- Add Github actions to run tests against Python versions 3.6 to 3.9 in different OS, and upload coverage to Codecov.

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- Provide API methods to quickly access the SMTwo class.
- Develop 100% coverage integration and unit tests in a TDD manner.
- Write new documentation.

0.1.0 (2020-07-14): Add tests, Update not required

- Add passing unit tests with a coverage of 100%.

0.0.4 (2020-07-10): Minor bug fix, Update recommended

- Fix interval calculation error when q < 3.

0.0.3 (2020-07-06): Documentation Update, Update not required

- Add new section about SM-2 in documentation, and fix some formats in README.

0.0.2 (2020-07-05): Refactor feature, Update recommended

- Refactor the supermemo2 algorithm code into a simpler structure, and remove unnecessary methods in the class.

0.0.1 (2020-07-02): Feature release

- Initial Release

## Credits

1. pytest
2. The SM-2 Algorithm

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