

# Programming Challenge

## Guidelines

Your software should have the quality of a real **maintainable product** and reflect your understanding of **good software style and high quality code**. You may use any frameworks, tools and external libraries you desire to implement the software.

Make sure that the reviewers receive a buildable and runnable solution.

Take your time to really think about the thesaurus problem mentioned in the assignment below. It might seem very simple at first glance, but it is not.

Consider your data structures, algorithms, performance and other non functional qualities.

Consider using a good separation of concerns pattern.

We expect *\*some\** test coverage.

Be prepared to discuss your code in detail during your next interview. Topics will include implementation decisions, limitations of the software and directions you would further develop the software.

## The Challenge

We want you to build a thesaurus solution. Please use the definition presented on <https://en.wikipedia.org/wiki/Thesaurus> as a reference.

## Feature I –A Thesaurus Library

Please implement a thesaurus in .NET. It should have the following functionality (expressed by these user stories):

- As a user I want to be able to add a word with some synonyms to the thesaurus, so that I can extend the content of the thesaurus.
- As a user I want to be able to get synonyms for a word from the thesaurus, so that I can use this knowledge to impress my friends.
- As a user I want to be able to list all words in the thesaurus, so that I know which words the thesaurus knows about.

## Feature II – A Thesaurus Web API

This feature is optional. Please use .NET to implement a Web API. It should have the following functionality:

- As a user of the thesaurus library I want to do all thesaurus operations from a Web API so that I can decouple my system.

## Feature III – A Thesaurus UI

Using either the library from feature 1 OR the Web API from feature 2, create a simple UI experience that can fully interact with the thesaurus.

Feel free to add any extra features to the experience, but focus on solving the core problem first.