

Build a Micro Product - Expand Your Software Skills

Mr. Dorai Thodla

CTO of iMorph Innovation Center Pvt Ltd

dorait@gmail.com

What is a Micro Product?

A micro product is the smallest useful product you can build in a few months. Your micro product can be a software tool(1), a web application (2), a mobile application or a game.

In this article, we will discuss how building a micro product can expand your skills as a Software Engineer.

Why you may want to build a Micro Product?

There are several reasons to build a micro product. We list three here.

- Use it as a first step in learning how to build products.
- To start a small revenue stream doing side projects.
- To satisfy your creative urge.

If you are a software engineer, building a micro product may be one of the most powerful expressions of your idea.

Here are a few more reasons. Building a micro product will:

1. Help you build several skills including user interaction design, testing, deployment, hosting.
2. Help you become a full stack engineer (3).
3. Improve your ability to think about the bigger picture - a whole product instead of parts.
4. Help you understand how to focus on the most important aspects of an application.
5. Teach you how to make lots of micro decisions.

But most of all, it will increase your confidence in building an end to end application.

How to go about building your first micro product?

You should build the first version of the product for your own use. Once you are satisfied, you can share it with others.

Here are a few steps.

1. Make a list of your ideas (the more ideas you have, the better).
2. Describe each idea (focus on what the idea is and why you are building a product).
3. Select one idea.
4. Make a list of high level features.
5. Mark each feature as essential, desirable or nice to have.
6. Create a list of development tasks and prioritize them.
7. Write code and tests to build usable versions of the product.
8. Test each version and write simple release notes.
9. Iterate 7-8 till you get the product you want.

Let us work through an example step by step.

Make a list of your ideas.

We will start with a few ideas.

- A Word game
- A News Assistant
- A Writing Assistant

Why do you start with an idea list? Why can't we start with just one? It is a good practice to start with a few ideas and go through a process of selection. We are starting with 3 ideas but you can start with more. In our product bootcamps, we start with 10 or more ideas.

Describe each idea

Once you have an idea list, you describe each idea. What is your idea and why are you interested in building this as a micro product?

Word Game: A word game is a simple web app. We present a user with a random list of 6 letters. In 3 minutes, they need to create as many 3, 4, 5, 6 letter words as possible from these 6 letters.

You can play this game to test your vocabulary. A web version of the game may be a great tool to gamify learning English.

News Assistant: A News Assistant gathers news based on your interests and stores them for easy access. You can browse through the news items reading summaries, filter them using keywords or visualize them as keyword clouds.

A News Assistant can save you a lot of time by collecting information from online news portals, clustering them by keywords, removing duplicates and summarizing the news using Machine Learning algorithms.

Writing Assistant: A Writing Assistant helps you write better. It can be a simple chatbot or browser extension.

A Writing Assistant can be useful to people for whom English is a second language. A web version of the Writing Assistant can gather analytics from an entire class of students and cluster categories of errors to help an English teacher.

Building the Micro Product

If you are building it for others to use, you can choose a platform based on your target users. You can pick one of the following approaches based on your skills. Build it:

- As a desktop application
- As a Web Application
- As a Browser Extension
- As a Mobile Application

Select one Idea

How will you pick one to work on? To keep things simple, we will evaluate the idea based on three parameters.

1. Will it be useful?
2. Can I build it in 2 to 3 months?
3. Does it help many people?

Your answers to each one of these questions may be - Yes/No/Not sure. We will assign scores (1 for Yes, 0 for No and 0.5 Not Sure)

Here is one version of the table.

Micro Product	Will it be Useful?	Can I build it in 3 months?	Does it help many people?	Score
Word Game	Yes	Yes	Not sure	2.5
News Assistant	Yes	Yes	Yes	3.0
Writing Assistant	Yes	No	Not sure	1.5

Based on our evaluation, we will pick News Assistant. In the rest of the article, we will go through the steps of building a News Assistant.

We kept this process of idea list and evaluation simple. You may have a bigger list of ideas and many other evaluation parameters. For example, If you want to start a product business, you may have other columns - business potential, size of the market, ability to reach potential customers, etc.

Make a list of features of the product

We decided on the News Assistant. So let us make a list of high level features. To keep your first micro product simple, we will narrow the scope to Technology News.

A News Assistant needs to:

1. Identify technology news sources
2. Gather news from the sources and store the news items in a database
3. Remove duplicates
4. Extract summaries from each news item and store it in the database
5. Extract keywords from the news text and store the list of keywords along with the news item
6. Create a simple view to show news headlines and summaries
7. Create a simple keyword search
8. Create a clickable keyword cloud so that when a user clicks on the keyword, all the news items containing the keyword are displayed

Prioritize Features

You are the first user of the product. What would you like to have the most? I grouped the features into three categories:

1. Essential
2. Desirable
3. Nice to have

Feature	Category
Identify technology news sources	Essential
Gather news from the sources and store the news items in a database	Essential
Remove duplicates	Desirable
Extract summaries from each news item and store it in the database	Desirable
Extract keywords from the news text and store the list of keywords	Nice to have
Create a simple view to show the headlines and summaries	Essential
Create a simple search view to filter news items by keywords	Desirable
Create a clickable keyword cloud so that when a user clicks on the keyword, all the news items for that keyword are displayed	Nice to have

The essence of the News Assistant is to help us consume news (in our case technology news) more effectively.

This kind of table is a good starting point for validating features. In later versions we can show it to a few people and get their feature requests, and add them to the list.

Create a list of development tasks

The next step - going from features to developmental tasks should come easy to you. One good approach when you are building micro products is to use open source libraries/modules as much as possible.

Here are the high-level tasks for the News Assistant.

1. For each news source, find out whether they provide an RSS (4) feed or an open API (5). It is preferable to use RSS. In fact, work only with news sources that provide RSS in the first version of the product.
2. Store the name of the news source, its URL and the URL of the RSS feed in a database table.
3. For each news source, retrieve the latest news items. Store each news item as a separate row in a table.
4. Use an auto-summarizer (6) to extract summaries for each news item. If you cannot find a good auto-summarizer, use tools to extract the first paragraph of the news item. Store the summary along with the news item.
5. Extract keywords (7) from the news item. There are several open source libraries and services that can help you with this.

6. Create a simple view of the news items with their headlines and summaries. If you can extract keywords, you can display them as tags along with the summary
7. Detect semantic similarity (8) between news items and eliminate duplicates. There are libraries you can use for doing this.
8. Collect all the keywords(extracted in step 5) and create a keyword cloud. When a user clicks on a keyword, search all the news items that contain the keyword and display them.

Divide your development into two week code sprints (9). At the end of each sprint, aim to have a testable/usable product. Start with essential features and then expand to include others (desirable).

There is joy in seeing your product gradually taking shape.

Hosting your Product on the Cloud

Once you build your product and test it, you can make it available on the Cloud (10). You can use any of the Cloud Providers like Amazon, Microsoft or Google. Many of these services have a free tier you can use while developing and testing it with a few people. You can also host them on Virtual Private Servers

You can show your product with the essential features to get some feedback.

Conclusion

In this article, we covered how to build a micro product. You start with an idea list, pick one idea based on your own selection criteria, start building the product and testing it. You will iterate through several things - the end-user interface, the organization of the modules and even the libraries.

Make sure you use a version control system to version your releases. Each release should have a release note, sources, database schema, images, etc. It should be easy for you to go back to an earlier version if you ever need to.

Once you have a satisfactory product use it for a while. You will come up with your own list of changes and new features. Add them to an issue list and tag them as bugs or features.

Building a micro product can be an enriching experience. You will go through many of the same steps as building a much larger product but will do everything on a smaller scale. You will use shorter development cycles and many iterations.

References

- (1) What are Software Tools? bit.ly/whatareswtools
- (2) What is a Web application - Wikipedia bit.ly/whatisawebapp
- (3) What is a Full Stack Engineer? bit.ly/whatisafullstackengineer
- (4) What is RSS - Wikipedia bit.ly/whatisrssfeed
- (5) What Are APIs and How Do They Work? | ProgrammableWeb bit.ly/whatwhyapis
- (6) What is Automatic summarization - Wikipedia bit.ly/whatisanautosummarizer
- (7) Keyword extraction - Wikipedia bit.ly/keywordextraction
- (8) Semantic similarity - Wikipedia bit.ly/semanticssimilarity
- (9) What Is a Sprint | freeCodeCamp Guide bit.ly/whatisasprint
- (10) Cloud computing - Wikipedia bit.ly/whatiscloudcomputing1

About the author



Dorai Thodla, is the CTO of iMorph Innovation Center Pvt Ltd. Dorai has over 40 years of experience in the software industry. He was responsible for creating and managing products in his four startups. He enjoys building product skills through boot camps and workshops. He divides his time between technology strategy consulting and building micro products. You can reach Dorai at <https://www.linkedin.com/in/doraihodla/> and dorait@imorph.com

“Creativity is seeing what everyone else has seen, and thinking what no one else has thought.”

– Albert Einstein

“Creativity involves breaking out of established patterns in order to look at things in a different way.”

– Edward de Bono