Code Translation Using Generative AI

Estimated time needed: 30 minutes

As a software developer, you may be very comfortable coding in a particular language. But often you have requests from client, to use a different language than what you are comfortable with. In the past, in such situations, you would either have had to learn the language or have to give up on the client and lose business. But today, generative AI can make it much simpler for developers.

Please remember that the prompts that you feed to generative AI are like a conversation with a subject matter expert and the consecutive prompts depend on the previous ones and the response received. Change the wording if required to get a specific desired result. The example showcases one possible chat conversation to attain the objective.

Learning Objectives

At the end of the lab, you will be able to:

1. Use generative AI to translate the code written in one language to another, retaining the logic and workflow as is.
2. Convert JavaScript CRUD code to Python CRUD code without any scripting in Python.

Prerequisites

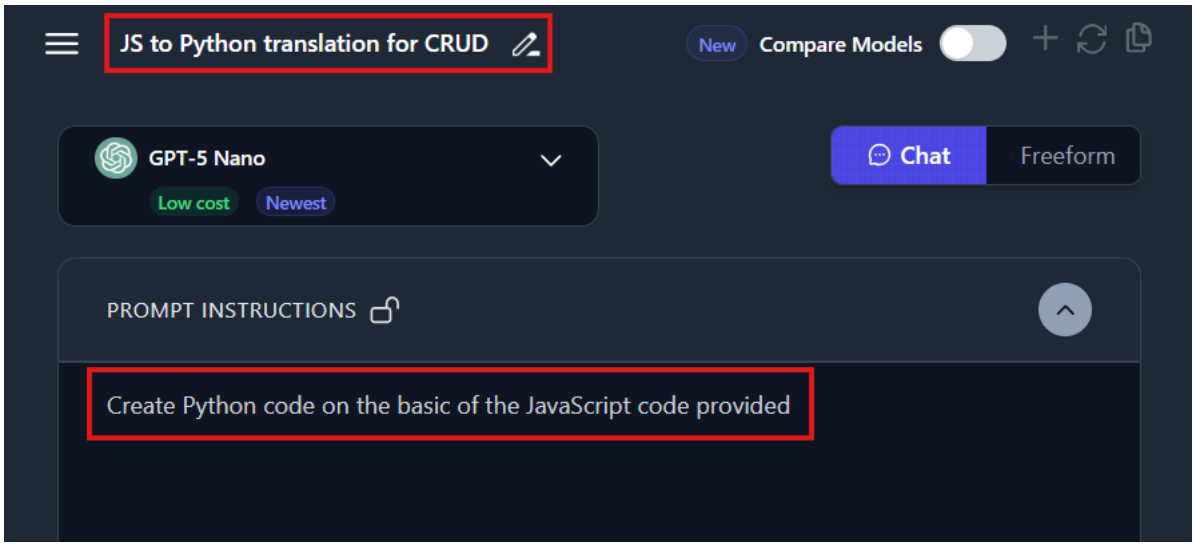
Know at least one programming language. The lab was created with some sample code in JavaScript. It will be good if you know how to read the JavaScript code.

Set up chat title and prompt instruction

When the chat session opens, a new chat conversation begins. Give the chat conversation an appropriate title. This will help you revisit the chat conversation. It is a good practice to segregate the conversations topically as it will help in continuing the conversation at a later point.

Also, provide prompt instructions that are specific to the conversation in this particular lab. Let's get started with the task of translating JavaScript code to Python.

> Please note that generative AI is an evolving field. As you attempt the labs, your experience and output might be different than what is seen here.



Tool capability to translate

You are already comfortable coding in JavaScript. You have created the code in JavaScript. You will now use gen AI model to create the same in Python.

Firstly, you need to determine if the gen AI tool has the capability to do the required translation. In the prompt type:

```
I have a requirement to code in Python. If I provide the JavaScript code, can you help me create the Python equivalent of the code?
```

If the GenAI model has the ability to translate, you will get an affirmative response in line with what is shown below. Python is one of the most commonly used languages, and this task of translating from JS to Python will be doable. But if there are other newer or scarcely used languages, you will need to use your judgment to perceive confidence in the response and decide whether to continue to use the tool, either entirely or as a support tool. Iterative prompts can be used to ensure the correctness of the responses.

▶ Click here to view the sample response generated

Provide the code to Gen AI

Paste the following code into the prompt and send it. This process will take a few seconds as it needs to process the code given and then give the equivalent.

```
// Employee class
class Employee {
  constructor(id, name, age, position) {
    this.id = id;
    this.name = name;
    this.age = age;
    this.position = position;
  }
}
// Employee data storage
let employees = [];
// Create employee
function createEmployee(id, name, age, position) {
  const employee = new Employee(id, name, age, position);
  employees.push(employee);
}
// Read employee by ID
function readEmployee(id) {
  return employees.find((employee) => employee.id === id);
}
// Update employee by ID
function updateEmployee(id, updatedData) {
  const employee = employees.find((employee) => employee.id === id);
  if (employee) {
    Object.assign(employee, updatedData);
  }
}

// Delete employee by ID
function deleteEmployee(id) {
  employees = employees.filter((employee) => employee.id !== id);
}
```

It will produce an output as Python code similar to what is shown below.

▶ Click here to view the sample response generated

This is with the assumption that the JavaScript code has been typed properly. If there are minor coding mistakes, gen AI has the ability to correct itself and give the right output.

There are often a few lines of explanation given at the end of the response. This will not be the same every time, as the responses are AI-generated and not programmed. The essence of the message is, however, consistent. If there is no explanation, you can prompt for an explanation of the code rendered.

Explain the python code

You can skip this step if the explanation offered at the end of the previous step suffices. If required, prompt for an explanation of the code.

```
Explain this Python code step by step. For each section (class, data storage, CRUD functions, example usage), show the code block ar
```

The output would be similar to what is shown below. You can iteratively prompt for more specific questions you may have.

▶ Click here to view the sample response generated

Versions of Python

It is important to know which version of Python the code will work with. There might be requirements to provide older versions for backward compatibility, especially when you are going to create software that fits into other existing software. Type the next prompt as:

```
Explain which Python versions this code runs on, noting any features and their minimum version. Include recommended versions and a s
```

The output would be similar to what is given below.

▶ Click here to view the sample response generated

Include version information in code

It is easier to include the Python version information in the file. Type the next prompt as:

```
Update the Python code to include comments specifying which Python versions support it. Keep the code unchanged except for adding a
```

It will reproduce the same code as before, with the comment statement about the version included.

▶ Click here to view the sample response generated

Including comments

Comments are extremely important for code readability. It is always good coding practice to include comments explaining what the code does. Type the next prompt as:

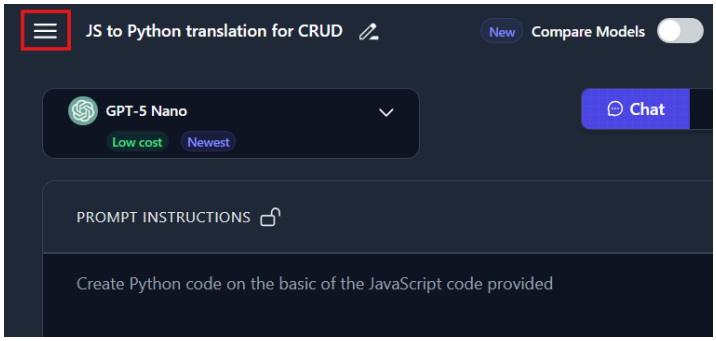
```
Add detailed comments to the existing Python code to explain:
The purpose of each class and function
Each attribute in the Employee class
Key steps in the CRUD operations
Example usage
Also, provide a short summary explaining how the comments improve readability.
```

▶ Click here to view the sample response generated

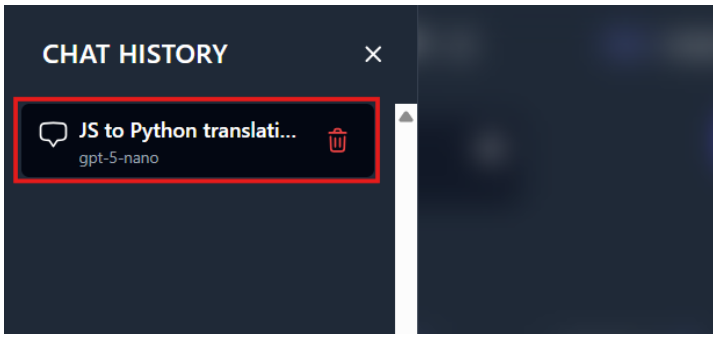
Conclusion

Congratulations! You have created Python code without knowing or knowing little about the language. If you are happy with the output produced, you may copy the code, use it, and engage generative AI to enhance the code with other functionalities. If you want to improvise, you may ask additional relevant questions. Generative AI depends on external sources to supplement the responses with more facts and realism. However, it is your prerogative as a software developer to run the software and see if it is created as per the requirements.

You can always visit the conversation during the live session using the history option by clicking on the burger menu on the top-left.



Then choose the chat by title among all the labs listed out.



Author(s)

Ramanujam
Lavanya TS