

# Building Generative AI apps with GitHub Models and .NET

**April Yoho**

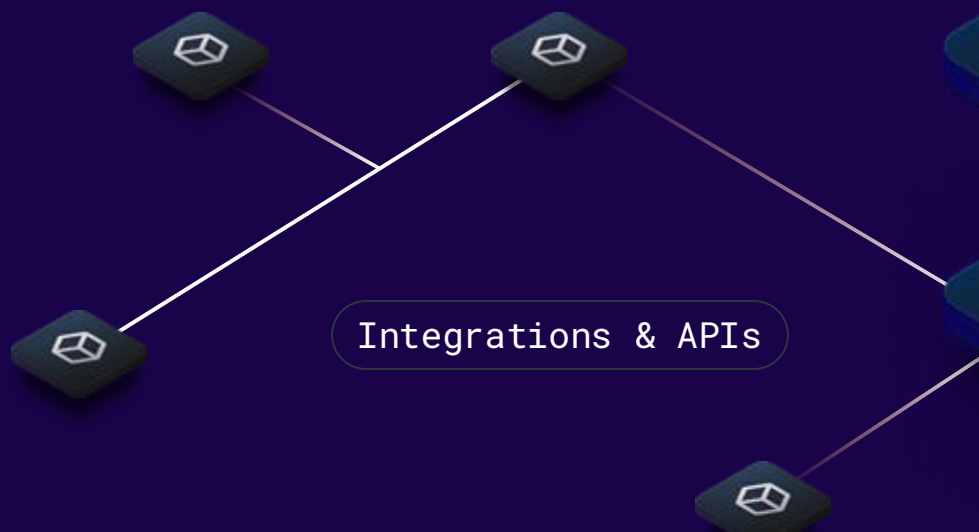
 Scubaninja

 /azureapril



# GitHub Platform

The AI Powered Developer Platform  
to Build, Scale, and Deliver Secure  
Software





# Using AI to build AI



# The world's most widely adopted AI developer tool



GITHUB COPILOT: CHAT

GitHub Copilot

```
import unittest
import datetime

class TestParseExpenses(unittest.TestCase):
    def test_parse_expenses_with_valid_input(self):
        expenses_string = '2023-01-02 -34.01 USD\n2023-01-03 2.59 DKK\n2023-01-03 -2.72 EUR'
        expected_output = [(datetime.datetime(2023, 1, 2), -34.01, 'USD'), (datetime.datetime(2023, 1, 3), 2.59, 'DKK'), (datetime.datetime(2023, 1, 3), -2.72, 'EUR')]
        self.assertEqual(parse_expenses(expenses_string), expected_output)

    def test_parse_expenses_with_empty_input(self):
        expenses_string = ''
        expected_output = []
        self.assertEqual(parse_expenses(expenses_string), expected_output)

    def test_parse_expenses_with_comments(self):
        expenses_string = '# This is a comment\n2023-01-02 -34.01 USD\n2023-01-03 2.59 DKK\n2023-01-03 -2.72 EUR'
        expected_output = [(datetime.datetime(2023, 1, 2), -34.01, 'USD'), (datetime.datetime(2023, 1, 3), 2.59, 'DKK'), (datetime.datetime(2023, 1, 3), -2.72, 'EUR')]
        self.assertEqual(parse_expenses(expenses_string), expected_output)

if __name__ == '__main__':
    unittest.main()
```

The code assumes that the datetime module is imported. The test

parse\_expenses.py × addresses.rb × sentiments.ts ×

```
1 import datetime
2
3 def parse_expenses (expenses_string):
4     """Parse the list of expenses and return the list of triples (date, amount, currency)
5     Ignore lines starting with #.
6     Parse the date using datetime.
7     Example expenses_string:
8         2023-01-02 -34.01 USD
9         2023-01-03 2.59 DKK
10        2023-01-03 -2.72 EUR
11    """
12    expenses = []
13
14    for line in expenses_string.splitlines():
15        if line.startswith("#"):
16            continue
17        date, value, currency = line.split(" ")
18        expenses.append((datetime.datetime.strptime (date, "%Y-%m-%d"),
19                        float (value),
20                        currency))
21    return expenses
22
23 expenses_data = '''2023-01-02 -34.01 USD
24                  2023-01-03 2.59 DKK
25                  2023-01-03 -2.72 EUR'''
26
27
```

# Multi-model Copilot has arrived






# GitHub Copilot for VS Code





# GitHub Copilot for VS Code


 Multi-file editing

 Multi-model selection


 Code review

 Repo indexing

 Code referencing

 Custom instructions

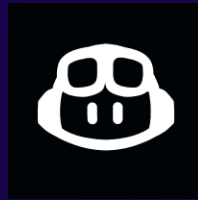
 @github

 Intent detection



# Demo





# Rise of the AI engineer



OpenAI GPT-4o  
Azure OpenAI Service



Phi-3 medium instruct (128K)  
Microsoft



Meta-Llama-3.1-405B-Instruct  
Meta

Introducing



# GitHub Models



Cohere Command R+  
Cohere



AI21-Jamba-Instruct  
AI21 Labs



Mistral Large (2407)  
Mistral AI

## GitHub Models / Summer 2024



Phi-3.5-mini instruct (128K)  
Microsoft



Phi-3-medium instruct (128K)  
Microsoft



Phi-3-medium instruct (4K)  
Microsoft



Phi-3-mini instruct (128K)  
Microsoft



Phi-3-mini instruct (4K)  
Microsoft



Phi-3-small instruct (128K)  
Microsoft



Phi-3-small instruct (8K)  
Microsoft



OpenAI GPT-4o  
OpenAI/Azure OpenAI Service



OpenAI GPT-4o mini  
OpenAI/Azure OpenAI Service



OpenAI Text Embedding 3 (large)  
OpenAI/Azure OpenAI Service



OpenAI Text Embedding 3 (small)  
OpenAI/Azure OpenAI Service



AI21-Jamba-Instruct  
AI21



Meta-Llama-3.1-405B-Instruct  
Meta



Meta-Llama-3.1-70B-Instruct  
Meta



Meta-Llama-3.1-8B-Instruct  
Meta



Meta-Llama-3-70B-Instruct  
Meta



Meta-Llama-3-8B-Instruct  
Meta



Cohere Command R+ 08-2024  
Cohere



Cohere Command R 08-2024  
Cohere



Mistral Nemo  
Mistral



Mistral Large  
Mistral



Mistral Large (2407)  
Mistral



Mistral Small  
Mistral

## GitHub Models / Summer 2024



Phi-3.5-mini instruct (128K)  
Microsoft



Phi-3-medium instruct (128K)  
Microsoft



Phi-3-medium instruct (4K)  
Microsoft



Phi-3-mini instruct (128K)  
Microsoft



Phi-3-mini instruct (4K)  
Microsoft



Phi-3-small instruct (128K)  
Microsoft



Phi-3-small instruct (8K)  
Microsoft



OpenAI GPT-4o  
OpenAI/Azure OpenAI Service



OpenAI GPT-4o mini  
OpenAI/Azure OpenAI Service



OpenAI Text Embedding 3 (large)  
OpenAI/Azure OpenAI Service



OpenAI Text Embedding 3 (small)  
OpenAI/Azure OpenAI Service



AI21-Jamba-Instruct  
AI21



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Meta



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Meta



Meta-Llama-3-70B-Instruct  
Meta



Meta-Llama-3-8B-Instruct  
Meta



Cohere Command R+ 08-2024  
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Cohere Command R 08-2024  
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Microsoft



Phi-3-mini instruct (4K)  
Microsoft



Phi-3-small instruct (128K)  
Microsoft



Phi-3-small instruct (8K)  
Microsoft



OpenAI GPT-4o  
OpenAI/Azure OpenAI Service



OpenAI GPT-4o mini  
OpenAI/Azure OpenAI Service



OpenAI Text Embedding 3 (large)  
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OpenAI Text Embedding 3 (small)  
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AI21-Jamba-Instruct  
AI21



Meta-Llama-3.1-405B-Instruct  
Meta



Meta-Llama-3.1-70B-Instruct  
Meta



Meta-Llama-3.1-8B-Instruct  
Meta



Meta-Llama-3-70B-Instruct  
Meta



Meta-Llama-3-8B-Instruct  
Meta



Cohere Command R+ 08-2024  
Cohere



Cohere Command R 08-2024  
Cohere



Mistral Nemo  
Mistral



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Mistral Large (2407)  
Mistral



Mistral Small  
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Microsoft



Phi-3-medium instruct (128K)  
Microsoft



Phi-3-medium instruct (4K)  
Microsoft



Phi-3-mini instruct (128K)  
Microsoft



Phi-3-mini instruct (4K)  
Microsoft



Phi-3-small instruct (128K)  
Microsoft



Phi-3-small instruct (8K)  
Microsoft



OpenAI GPT-4o  
OpenAI/Azure OpenAI



OpenAI GPT-4o mini  
OpenAI/Azure OpenAI Service



OpenAI Text Embedding  
OpenAI/Azure OpenAI



OpenAI Text Embedding  
OpenAI/Azure OpenAI



AI21-Jamba-Instruct  
AI21



Meta-Llama-3.1-405B-Instruct  
Meta



Meta-Llama-3.1-70B-Instruct  
Meta



Meta-Llama-3.1-8B-Instruct  
Meta



Meta-Llama-3-70B-Instruct  
Meta



Meta-Llama-3-8B-Instruct  
Meta



Cohere Command R v0.6-2024  
Cohere



Mistral Nemo  
Mistral



Mistral Large  
Mistral



Mistral Large (2407)  
Mistral



Mistral Small  
Mistral

# GitHub Models / Today



Phi-3.5 vision instruct (128K)  
Microsoft



Phi-3.5-MoE-Instruct  
Microsoft



Phi-3.5-mini instruct (128K)  
Microsoft



Phi-3-medium instruct (128K)  
Microsoft



Phi-3-medium instruct (4K)  
Microsoft



Phi-3-mini instruct (128K)  
Microsoft



Phi-3-mini instruct (4K)  
Microsoft



Phi-3-small instruct (128K)  
Microsoft



Phi-3-small instruct (8K)  
Microsoft



OpenAI 01-mini  
OpenAI/Azure OpenAI Service



OpenAI 01-preview  
OpenAI/Azure OpenAI Service



OpenAI GPT-4o  
OpenAI/Azure OpenAI Service



OpenAI GPT-4o mini  
OpenAI/Azure OpenAI Service



OpenAI Text Embedding 3 (large)  
OpenAI/Azure OpenAI Service



OpenAI Text Embedding 3 (small)  
OpenAI/Azure OpenAI Service



AI21-Jamba-Instruct  
AI21



AI21 Jamba 1.5 Large  
AI21



AI21 Jamba 1.5 Mini  
AI21



Meta-Llama-3.2 11B Vision Instruct  
Meta



Meta-Llama-3.2 90B Vision Instruct  
Meta



Meta-Llama-3.1-405B-Instruct  
Meta



Meta-Llama-3.1-70B-Instruct  
Meta



Meta-Llama-3.1-8B-Instruct  
Meta



Meta-Llama-3-70B-Instruct  
Meta



Meta-Llama-3-8B-Instruct  
Meta



Cohere Command R+ 08-2024  
Cohere



Cohere Command R 08-2024  
Cohere



Bria 2.3  
Bria



Cohere Command R  
Cohere



Cohere Command R+  
Cohere



Cohere Embed v3 English  
Cohere



Cohere Embed v3 Multilingual  
Cohere



Mistral Nemo  
Mistral



Mistral Large  
Mistral



Mistral Large (2407)  
Mistral



Mistral Small  
Mistral



Bria 2.3 HD  
Bria



Bria 2.3 Fast  
Bria





# Demo







# No more waitlist

 @models extension


 Models in CLI

 Playground

 Side-by-side comparison

 Code samples

 API keys

 Multi-modal



**Leave us feedback!**

<https://gh.io/ModelsFeedback>

# Resources

GitHub Marketplace

<https://github.com/marketplace/models>

Feedback Discussion

<https://gh.io/ModelsFeedback>

GitHub Models in .NET with  
Semantic Kernel blog

<https://gh.io/ModelsSemanticKernel>

Build Generative AI apps  
with .NET and GitHub  
Models blog

<https://gh.io/GitHubModelsandDotNet>

VSCode AI Toolkit

<https://gh.io/AIToolkit>

**Thank you**

