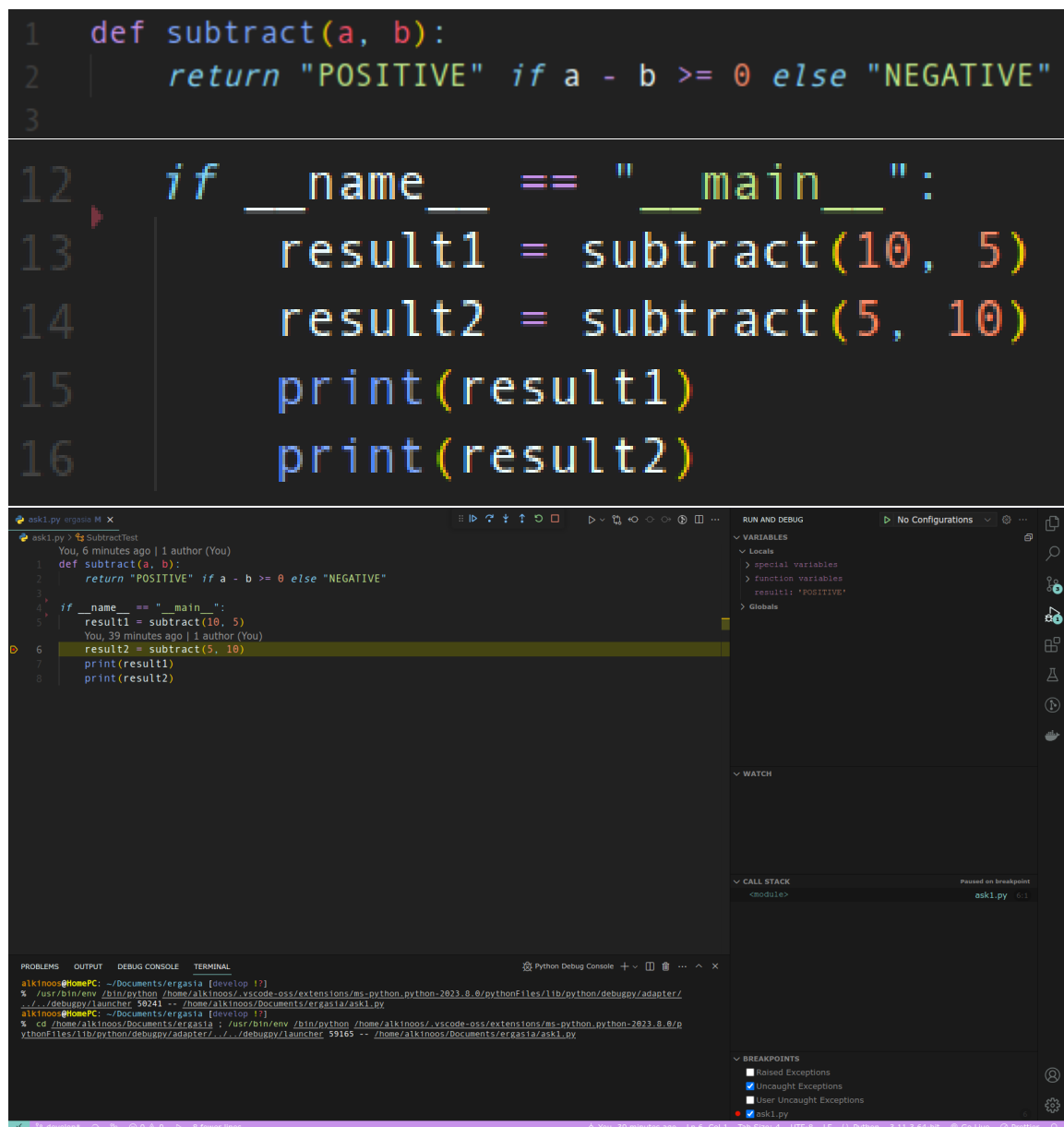


Εργασία Προηγμένες Τεχνικές Προγραμματισμού

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Άσκηση 1

```
1 def subtract(a, b):
2     return "POSITIVE" if a - b >= 0 else "NEGATIVE"
3
12 if __name__ == "__main__":
13     result1 = subtract(10, 5)
14     result2 = subtract(5, 10)
15     print(result1)
16     print(result2)
```



The screenshot shows a VS Code editor with a Python script. The script defines a function `subtract(a, b)` that returns "POSITIVE" if `a - b >= 0` else "NEGATIVE". The main block calls `subtract(10, 5)` and `subtract(5, 10)`, printing the results. The output shows "POSITIVE" and "NEGATIVE". The interface includes a sidebar with "VARIABLES", "WATCH", "CALL STACK", and "BREAKPOINTS" panels.

```
4  import unittest
5
You, 7 minutes ago | 1 author (You)
6  class SubtractTest(unittest.TestCase):
7      def test_subtract(self):
8          self.assertEqual(subtract(10, 5), "POSITIVE")
9          self.assertEqual(subtract(10, 10), "POSITIVE")
10         self.assertEqual(subtract(5, 10), "NEGATIVE")
11
12     if __name__ == "__main__":
13         unittest.main()
14
15         result1 = subtract(10, 5)
16         result2 = subtract(5, 10)
17         print(result1)
18         print(result2)
```

Άσκηση 2

The screenshot displays a GitHub pull request interface. At the top, the 'Default branch' is set to 'master', updated 9 minutes ago by 'alk-alyss'. Below this, 'Your branches' section shows 'develop' updated 7 minutes ago by 'alk-alyss'. The main title of the pull request is 'change subtract behaviour and add unit test #1'. A status bar indicates it is 'Merged' by 'alk-alyss' into 'master' from 'develop' 'now'. Below the title, there are tabs for 'Conversation' (0), 'Commits' (1), 'Checks' (0), and 'Files changed' (1). A comment by 'alk-alyss' is shown with the text 'No description provided.' and a smiley face emoji. Below the comment, a commit is shown with the message 'change subtract behaviour and add unit test', marked as 'Verified' with hash '83795cb'. A merge summary indicates 'alk-alyss merged commit boc308f into master now' with a 'Revert' button. At the bottom, a message states 'Pull request successfully merged and closed' and suggests the 'develop' branch can be safely deleted, with a 'Delete branch' button.

Άσκηση 3

```
1  import paho.mqtt.client as mqtt
2
3  def on_connect(client, userdata, flags, rc):
4      if rc == 0:
5          print("Connected to MQTT Broker!")
6      else:
7          print("Failed to connect, return code %d\n", rc)
8
9  client = mqtt.Client()
10 client.on_connect = on_connect()
11
12 client.connect("mqtt.eclipseprojects.io")
13 client.loop_start()
14
15
16 from fastapi import FastAPI
17 from pydantic import BaseModel
18
19 app = FastAPI()
20
21 class Message(BaseModel):
22     data: str
23
24 @app.post("/")
25 def getMessage(message: Message):
26     print(message.data)
27     client.publish("alk_alyss/test", message)
28
```

```
1  FROM python:3.11
2  WORKDIR /server
3  COPY ./requirements.txt ./requirements.txt
4  RUN pip install --no-cache-dir --upgrade -r requirements.txt
5  COPY ./ask3.py .
6  CMD ["uvicorn", "ask3:app", "--host", "0.0.0.0", "--port", "80"]
```