ASSIGNMENT – 15.4

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BATCH NO: AIB04

TASK 1:

PROMPT:

Generate a simple Flask backend in Python with one endpoint that returns a JSON message “Welcome to AI-assisted API”.

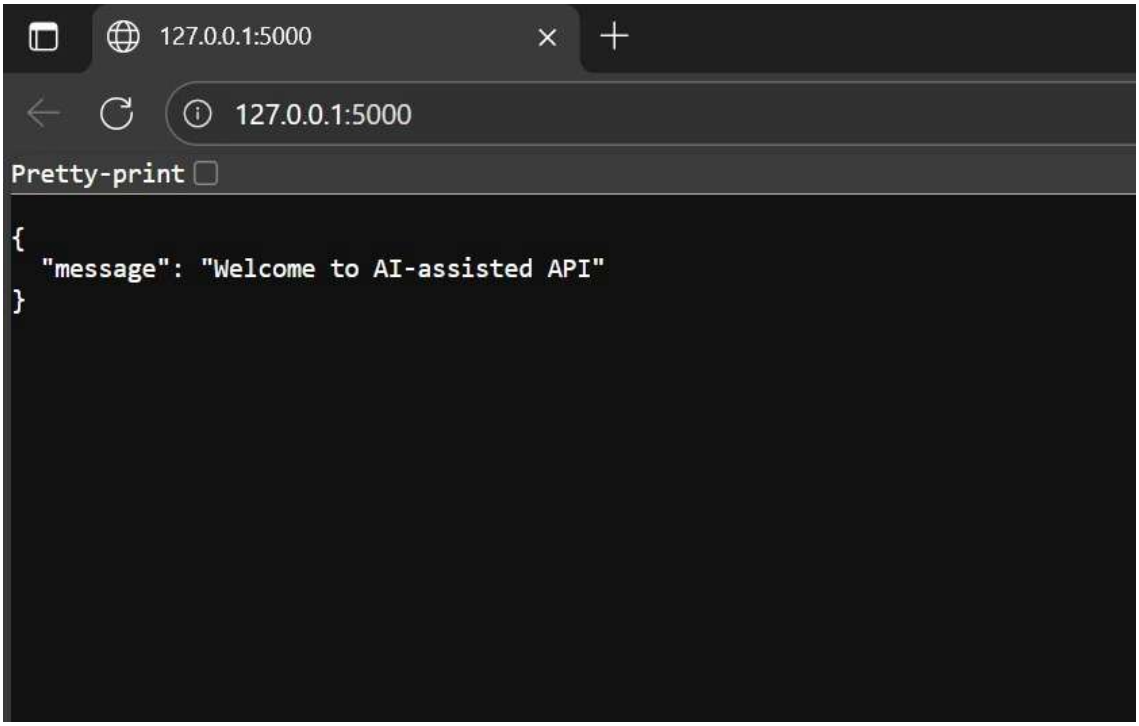
CODE:

lab-15 > task1.py > ...

```python
from flask import Flask, jsonify

app = Flask(__name__)

@app.route('/')
def home():
    return jsonify({"message": "Welcome to AI-assisted API"})

if __name__ == "__main__":
    app.run(debug=True)

```

OUTPUT:

```
in\OneDrive\Desktop\AI Assisted coding assignments\AI Assisted Coding\lab-15\task1.py'
 * Serving Flask app 'task1'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server in
stead.
 * Running on http://127.0.0.1:5000
 * Running on http://127.0.0.1:5000   arting with stat
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
```



OBSERVATION:

In this code, I observed that Flask is used to create a simple web server with one endpoint. The / route returns a JSON message “Welcome to AI-assisted API” using the jsonify() function. The server runs in debug mode, and when accessed through http://127.0.0.1:5000/, it displays the message correctly in the browser or Postman.

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TASK 2:

PROMPT:

Create a simple Flask CRUD API with Read (GET) and Create (POST) operations using an in-memory list.

CODE:

lab-15 > task2.py > ...

```python
from flask import Flask, jsonify, request
app = Flask(__name__)
items = []
@app.route('/')
def home():
    return jsonify({"message": "Welcome to the CRUD API! Try /items"}), 200
# GET all items
@app.route('/items', methods=['GET'])
def get_items():
    return jsonify(items), 200
# POST a new item
@app.route('/items', methods=['POST'])
def add_item():
    data = request.get_json()
    if not data or "name" not in data:
        return jsonify({"error": "Invalid item data"}), 400
    item = {
        "id": len(items) + 1,
        "name": data["name"]
    }
    items.append(item)
    return jsonify({"message": "Item added", "item": item}), 201
if __name__ == "__main__":
    app.run(debug=True)

```

OUTPUT:

```
 * Serving Flask app 'task2'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 747-951-939
127.0.0.1 - - [23/Oct/2025 12:24:11] "GET / HTTP/1.1" 200 -
```

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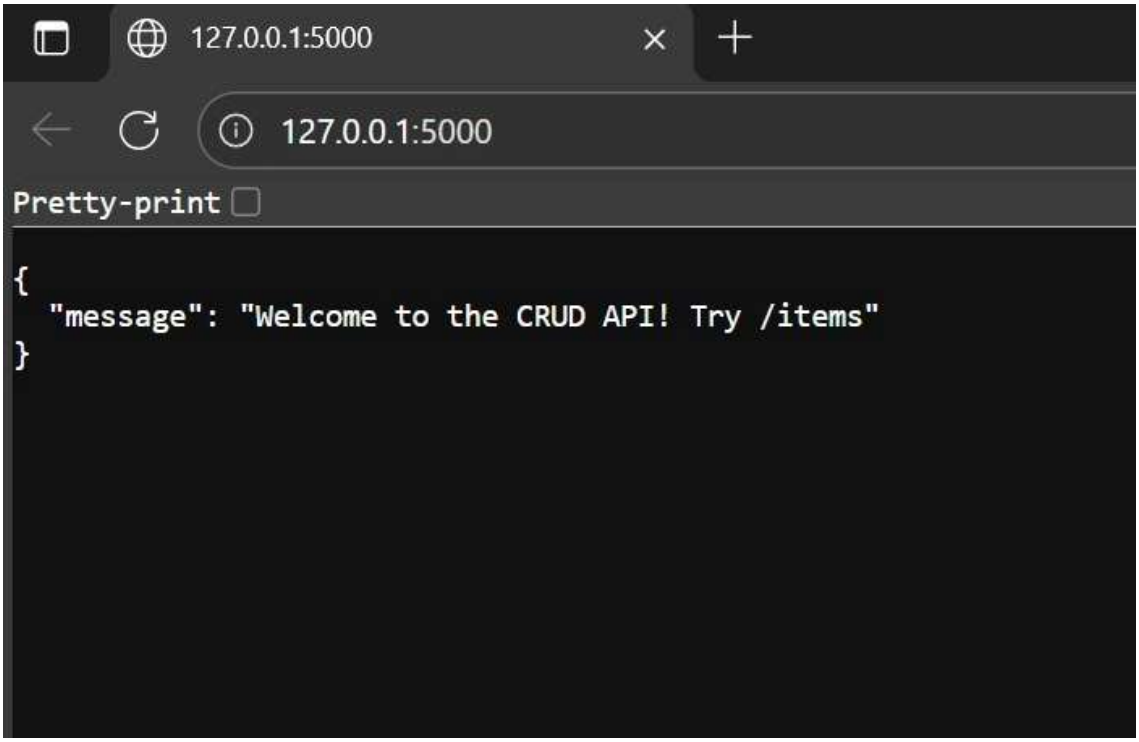

OBSERVATION:

In this code, I observed that Flask is used to create two API endpoints for reading and adding items. The /items route with the GET method returns all items stored in the in-memory list, while the POST method adds a new item received as JSON data. The added item is appended to the list and a success message is returned. Since the data is stored in memory, it will reset when the server restarts. This provides a simple demonstration of basic CRUD operations.

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TASK 3:

PROMPT:

Create a PUT endpoint in Flask to update an existing item by its index.

CODE:

lab-15 > task3.py > ...

```python
from flask import Flask, jsonify, request
app = Flask(__name__)
# In-memory list
items = []
# Home route
@app.route('/')
def home():
    return jsonify({"message": "Welcome to the CRUD API! Try /items"}), 200
# GET all items
@app.route('/items', methods=['GET'])
def get_items():
    return jsonify(items), 200
# POST a new item
@app.route('/items', methods=['POST'])
def add_item():
    data = request.get_json()
    if not data:
        return jsonify({"error": "Invalid item data"}), 400
    items.append(data)
    return jsonify({"message": "Item added", "item": data}), 201
# PUT /items/<int:index> - update an existing item
@app.route('/items/<int:index>', methods=['PUT'])
def update_item(index):
    if index < 0 or index >= len(items):
        return jsonify({"error": "Item not found"}), 404
    data = request.get_json()
    if not data:
        return jsonify({"error": "Invalid item data"}), 400
    items[index] = data
    return jsonify({"message": "Item updated", "item": data}), 200
if __name__ == "__main__":
    app.run(debug=True)
```

OUTPUT:

```
 * Serving Flask app 'task3'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 747-951-939
127.0.0.1 - - [23/Oct/2025 12:30:05] "GET / HTTP/1.1" 200 -
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 747-951-939
127.0.0.1 - - [23/Oct/2025 12:30:05] "GET / HTTP/1.1" 200 -
```

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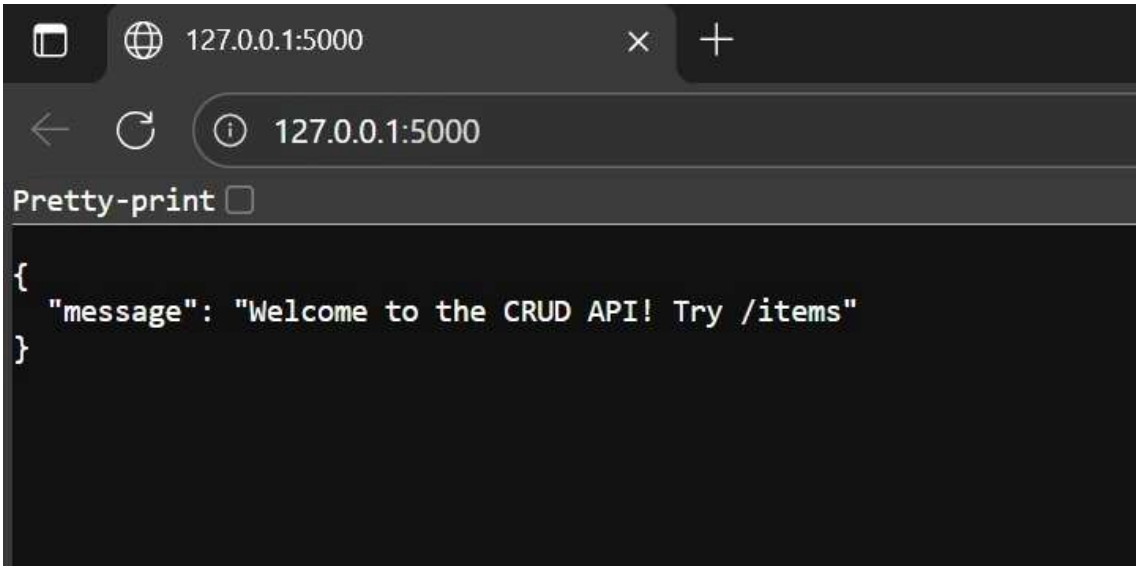

OBSERVATION:

This Flask code defines a PUT endpoint allows updating an existing item in the list based on its index. It first checks if the given index is valid to avoid errors when accessing non-existent items. The new data for the update is received as a JSON payload from the client request and replaces the old item in the list. Finally, the API returns a JSON response containing a success message along with the updated item details, confirming that the update was successful.

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