

# ASSIGNMENT – 15.4

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**TASK 1:**

**PROMPT:**

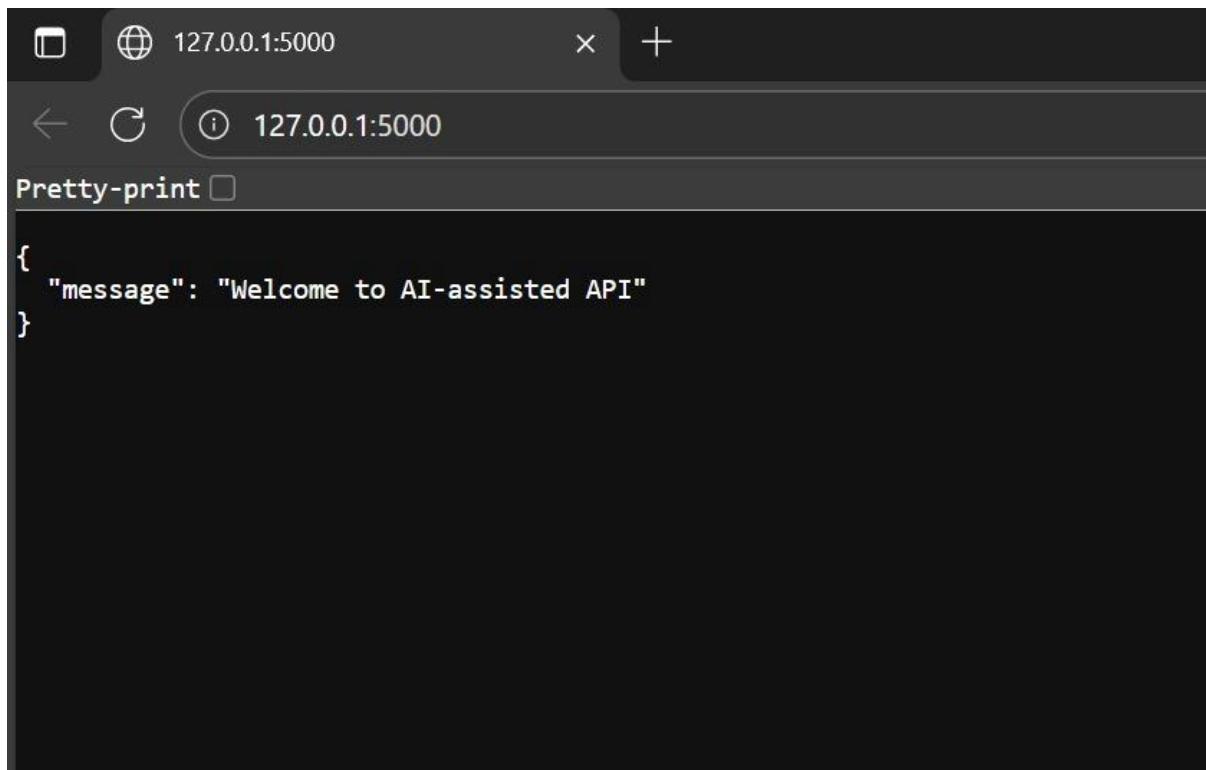
Generate a simple Flask backend in Python with one endpoint that returns a JSON message “Welcome to AI-assisted API”.

**CODE:**

```
lab-15 > task1.py > ...
1  from flask import Flask, jsonify
2
3  app = Flask(__name__)
4
5  @app.route('/')
6  def home():
7      return jsonify({"message": "Welcome to AI-assisted API"})
8
9  if __name__ == "__main__":
10     app.run(debug=True)
11
```

**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 instead.
* Running on http://127.0.0.1:5000
* Running on http://127.0.0.1:5000  Restarting with stat
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
In 11, Col 1 - Sp
```



A screenshot of a web browser window. The address bar shows the URL `127.0.0.1:5000`. Below the address bar, there is a "Pretty-print" checkbox followed by a JSON response. The JSON response is:

```
{  
    "message": "Welcome to AI-assisted API"  
}
```

### **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.

### **TASK 2:**

#### **PROMPT:**

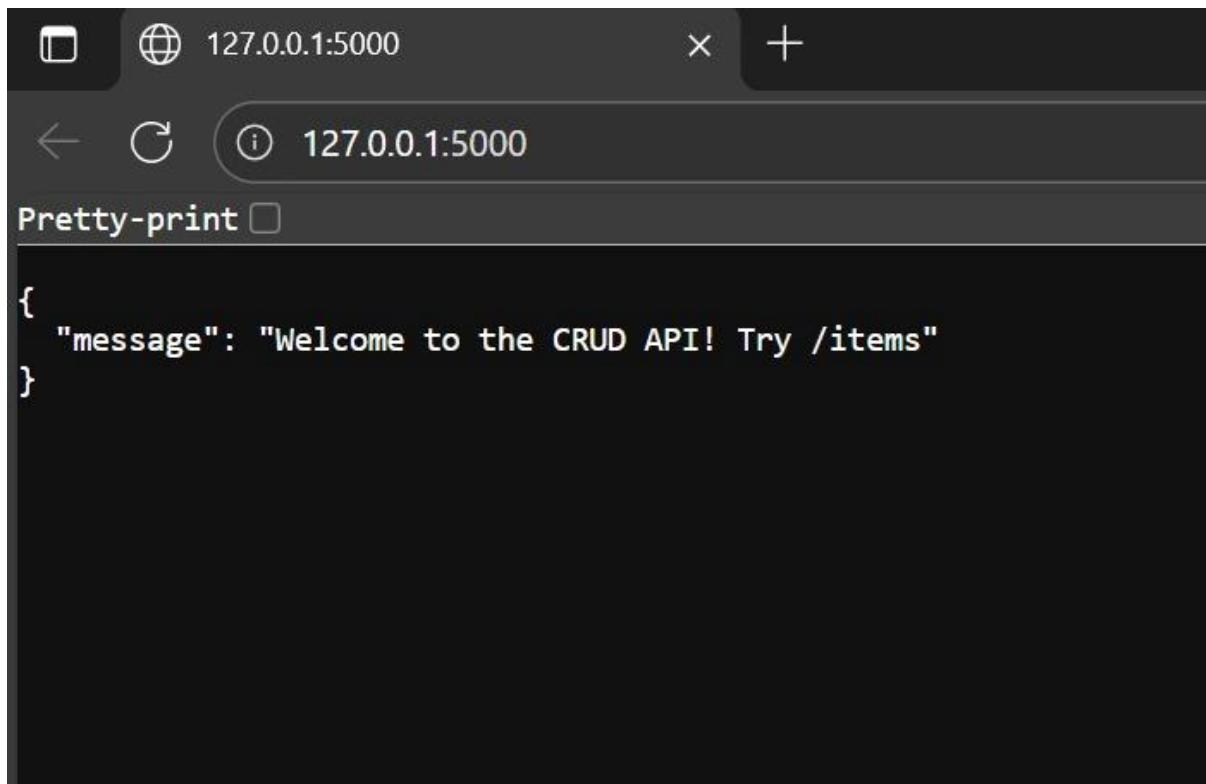
Create a simple Flask CRUD API with Read (GET) and Create (POST) operations using an in-memory list.

#### **CODE:**

```
lab-15 > task2.py > ...
 1  from flask import Flask, jsonify, request
 2  app = Flask(__name__)
 3  items = []
 4  @app.route('/')
 5  def home():
 6      return jsonify({"message": "Welcome to the CRUD API! Try /items"}), 200
 7  # GET all items
 8  @app.route('/items', methods=['GET'])
 9  def get_items():
10      return jsonify(items), 200
11  # POST a new item
12  @app.route('/items', methods=['POST'])
13  def add_item():
14      data = request.get_json()
15      if not data or "name" not in data:
16          return jsonify({"error": "Invalid item data"}), 400
17      item = {
18          "id": len(items) + 1,
19          "name": data["name"]
20      }
21      items.append(item)
22      return jsonify({"message": "Item added", "item": item}), 201
23  if __name__ == "__main__":
24      app.run(debug=True)
25
```

## 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 -
]
```



A screenshot of a web browser window. The address bar shows '127.0.0.1:5000'. Below the address bar, there are navigation buttons: back, forward, and a refresh button. A 'Pretty-print' checkbox is checked. The main content area displays the following JSON response:

```
{ "message": "Welcome to the CRUD API! Try /items" }
```

### **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.

### **TASK 3:**

#### **PROMPT:**

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

#### **CODE:**

```

lab-15 > task3.py > ...
 1  from flask import Flask, jsonify, request
 2  app = Flask(__name__)
 3  # In-memory list
 4  items = []
 5  # Home route
 6  @app.route('/')
 7  def home():
 8      return jsonify({"message": "Welcome to the CRUD API! Try /items"}), 200
 9  # GET all items
10  @app.route('/items', methods=['GET'])
11  def get_items():
12      return jsonify(items), 200
13  # POST a new item
14  @app.route('/items', methods=['POST'])
15  def add_item():
16      data = request.get_json()
17      if not data:
18          return jsonify({"error": "Invalid item data"}), 400
19      items.append(data)
20      return jsonify({"message": "Item added", "item": data}), 201
21  # PUT /items/<int:index> - update an existing item
22  @app.route('/items/<int:index>', methods=['PUT'])
23  def update_item(index):
24      if index < 0 or index >= len(items):
25          return jsonify({"error": "Item not found"}), 404
26      data = request.get_json()
27      if not data:
28          return jsonify({"error": "Invalid item data"}), 400
29      items[index] = data
30      return jsonify({"message": "Item updated", "item": data}), 200
31  if __name__ == "__main__":
32      app.run(debug=True)

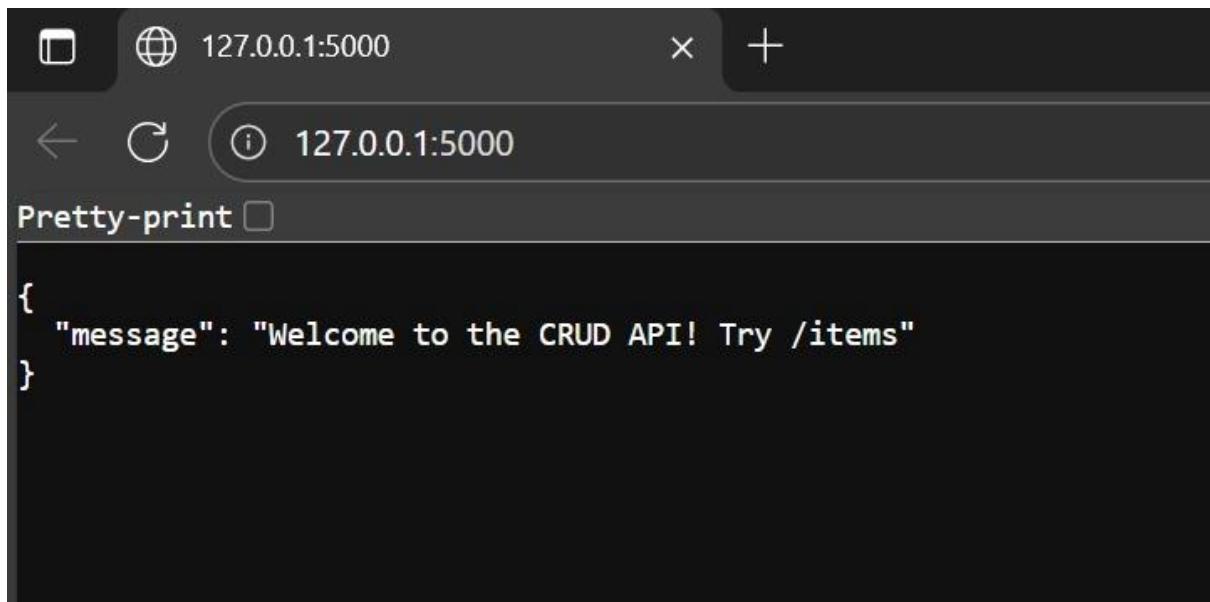
```

## 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 -

```



A screenshot of a web browser window. The address bar shows the URL `127.0.0.1:5000`. Below the address bar, there are navigation buttons (back, forward, refresh) and a status message `i 127.0.0.1:5000`. A "Pretty-print" checkbox is checked. The main content area displays the following JSON response:

```
{  
  "message": "Welcome to the CRUD API! Try /items"  
}
```

## 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.