

Task Management REST API

REST Concepts Used

This API follows RESTful design principles:

- Resource-based URLs: /tasks represents the task collection
- HTTP Methods: GET (retrieve), POST (create), PUT (update), DELETE (remove)
- Stateless: Each request contains all necessary information
- JSON Format: Consistent data exchange using JSON with jsonify
- Status Codes: Proper HTTP codes (200, 201, 404, 400, 500)

API Design Choices


- Unique IDs: UUID for task identification
- Timestamp Tracking: created_at and updated_at fields
- Input Validation: Required field checks and status validation
- Error Handling: Comprehensive error responses with success flags
- Filtering: Query parameter support for status filtering
- Documentation: Self-documenting API with info endpoints

Quick Start

```
pip install flask
python restapi_2023012.py
```

Access API at: <https://localhost:5005>

API Demonstration & Testing

API Server Status  Flask server is running on <https://localhost:5005>

Available Endpoints

1. Get API documentation:

```
curl -X GET "http://localhost:5005/"
```

2. Health Check

```
curl -X GET http://localhost:5005/health
```

3. Retrieve all tasks

```
curl -X GET "http://localhost:5005/tasks"
```

4. Retrieve specific task

```
curl -X GET "http://localhost:5005/tasks/{task-id}"
```

5. Create new task

```
curl -X POST "http://localhost:5005/tasks" -H "Content-Type: application/json" -d '{"title": "Study for exam", "description": "Chapter 1-5 review", "status": "pending"}'
```

6. Update existing task

```
curl -X PUT "http://localhost:5005/tasks/{task-id}" -H "Content-Type: application/json" -d '{"status": "completed"}'
```

7. Delete specific task

```
curl -X DELETE "http://localhost:5005/tasks/{task-id}"
```

8. Delete all tasks

```
curl -X DELETE "http://localhost:5005/tasks"
```

```

(base) mayank@Mayanks-MacBook-Air ~ % curl -X GET "http://localhost:5005/"
{
  "endpoints": {
    "DELETE /tasks": "Delete all tasks",
    "DELETE /tasks/<id>": "Delete task",
    "GET /health": "Health check",
    "GET /tasks": "List all tasks or filter by status",
    "GET /tasks/<id>": "Get one task",
    "POST /tasks": "Create task",
    "PUT /tasks/<id>": "Update task"
  },
  "name": "Task Manager API",
  "version": "1.0"
}
(base) mayank@Mayanks-MacBook-Air ~ % curl -X GET "http://localhost:5005/health"
{
  "ok": true,
  "status": "running",
  "time": "2025-09-30T18:06:41.604365",
  "total": 2
}
(base) mayank@Mayanks-MacBook-Air ~ % curl -X GET "http://localhost:5005/tasks"
{
  "ok": true,
  "tasks": [
    {
      "created": "2025-09-30T18:00:00",
      "description": "Build Flask CRUD endpoints for tasks",
      "id": "7e2ad505-2c2b-4182-8610-4c541097c1fd",
      "status": "in_progress",
      "title": "Finish REST API homework",
      "updated": "2025-09-30T18:00:00"
    },
    {
      "created": "2025-09-30T09:00:00",
      "description": "Revise Flask concepts and REST fundamentals",
      "id": "82300146-eb7c-4a48-bfab-588a93bebdcd",
      "status": "pending",
      "title": "Prepare for software exam",
      "updated": "2025-09-30T09:00:00"
    }
  ],
  "total": 2
}
(base) mayank@Mayanks-MacBook-Air ~ % curl -X GET "http://localhost:5005/tasks/{7e2ad505-2c2b-4182-8610-4c541097c1fd}"
{
  "ok": true,
  "task": {
    "created": "2025-09-30T18:00:00",
    "description": "Build Flask CRUD endpoints for tasks",
    "id": "7e2ad505-2c2b-4182-8610-4c541097c1fd",
    "status": "in_progress",
    "title": "Finish REST API homework",
    "updated": "2025-09-30T18:00:00"
  }
}
(base) mayank@Mayanks-MacBook-Air ~ % curl -X POST "http://localhost:5005/tasks" -H "Content-Type: application/json" -d '{"title": "Study for exam", "description": "Chapter 1-5 review", "status": "pending"}'
{
  "message": "Task successfully created",
  "ok": true,
  "task": {
    "created": "2025-09-30T18:08:24.366078",
    "description": "Chapter 1-5 review",
    "id": "14d81466-3ef3-4b20-be2d-448e3bc7f348",
    "status": "pending",
    "title": "Study for exam",
    "updated": "2025-09-30T18:08:24.366078"
  }
}

```

```

(base) mayank@Mayanks-MacBook-Air ~ % curl -X PUT "http://localhost:5005/tasks/{14d81466-3ef3-4b20-be2d-448e3bc7f348}" -H "Content-Type: application/json" -d '{"status": "completed"}'
{
  "message": "Task updated",
  "ok": true,
  "task": {
    "created": "2025-09-30T18:08:24.366078",
    "description": "Chapter 1-5 review",
    "id": "14d81466-3ef3-4b20-be2d-448e3bc7f348",
    "status": "completed",
    "title": "Study for exam",
    "updated": "2025-09-30T18:09:32.048971"
  }
}
(base) mayank@Mayanks-MacBook-Air ~ % curl -X DELETE "http://localhost:5005/tasks/{14d81466-3ef3-4b20-be2d-448e3bc7f348}"
{
  "deleted": "14d81466-3ef3-4b20-be2d-448e3bc7f348",
  "message": "Task removed",
  "ok": true
}
(base) mayank@Mayanks-MacBook-Air ~ % curl -X DELETE "http://localhost:5005/tasks"
{
  "count": 2,
  "message": "Removed 2 tasks",
  "ok": true
}
(base) mayank@Mayanks-MacBook-Air ~ % █

```