

UST Task Manager

Project: Task Tracker API(Phase 1)

Tech Stack: FastAPI + Python

Security: JWT authentication (HS256)

Data Storage: In-Memory Lists Only (No DB)

Goal: Build a secure backend API that manages tasks.

1. Project Overview

You will build a JWT-secured Task Tracker API with the following modules:

1. User Login API → Returns JWT token
2. Task CRUD API (Create, Read, Update, Delete) → Requires JWT
3. In-memory data storage → No database
4. Input validation using Pydantic models

This API will be used later as the backend for a frontend app.

Scenario 1

✓ Scenario 1: Successful Login

Input

```
{
  "username": "rahul",
  "password": "password123"
}
```

Output

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```
{
  "access_token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9...",
  "token_type": "bearer"
}
```

Request body required

Edit Value | Schema

```
{
  "username": "rahul",
  "password": "password123"
}
```


✖ Scenario 2: Login Failure

Input

```
{
  "username": "rahul",
  "password": "wrongpass"
}
```

Output

```
{"detail": "Invalid username or password"}
```

Request body required

Edit Value | Schema

```
{
  "username": "rahul",
  "password": "wrongpass"
}
```

Responses

Curl

```
curl -X 'POST' \
  'http://127.0.0.1:8000/login' \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
    "username": "rahul",
    "password": "wrongpass"
  }'
```

Request URL

```
http://127.0.0.1:8000/login
```

Server response

Code

Details

403

Error: Forbidden

Undocumented

Response body

```
{
  "detail": "Invalid Credentials"
}
```

✓ Scenario 3: Create Task

Input

```
{
  "title": "Book train tickets",
  "description": "Book IRCTC tickets to Chennai"
}
```

Output

```
{
  "id": 1,
  "title": "Book train tickets",
```

Manager

```
"description": "Book IRCTC tickets to Chennai",
"completed": false
}
```

Request body required

Edit Value | Schema

```
{
  "title": "Book train tickets",
  "description": "Book IRCTC tickets to Chennai"
}
```

Request URL

```
http://127.0.0.1:8000/tasks
```

Server response

Code

Details

200

Response body

```
{
  "id": 2,
  "title": "Book train tickets ",
  "description": "Book IRCTC tickets to Chennai",
  "completed": false
}
```

Response headers

```
content-length: 102
content-type: application/json
date: Tue, 25 Nov 2025 06:22:22 GMT
server: uvicorn
```

✗ Scenario 4: Create Task with Missing Title

Input

```
{
  "description": "Something"
}
```

Output

```
{
  "detail": [
    {
      "loc": ["body", "title"],
      "msg": "field required",
      "type": "value_error.missing"
    }
  ]
}
```

Request body required

Edit Value | Schema

```
{
  "description": "Something"
}
```

Request URL

```
http://127.0.0.1:8000/tasks
```

Server response

Code	Details
------	---------

422	Error: Unprocessable Content
-----	------------------------------

Response body

```
{
  "detail": [
    {
      "type": "missing",
      "loc": [
        "body",
        "title"
      ],
      "msg": "Field required",
      "input": {
        "description": "Something"
      }
    }
  ]
}
```

✓ Scenario 5: Update Task

Input

```
{
  "title": "Pay Water Bill",
  "description": "Pay BWSSB bill",
}
```

k Manager

```
  "completed": true
}
```

Output

```
{
  "id": 1,
  "title": "Pay Water Bill",
  "description": "Pay BWSSB bill",
  "completed": true
}
```

Request body required

Edit Value | Schema

```
{
  "title": "Pay Water Bill",
  "description": "Pay BWSSB bill",
  "completed": true
}
```

Request URL

```
http://127.0.0.1:8000/tasks/1
```

Server response

Code

Details

200

Response body

```
{
  "id": 1,
  "title": "Pay Water Bill",
  "description": "Pay BISSB bill",
  "completed": true
}
```

Scenario 7: Delete Non-Existing Task

Response

```
{"detail": "Task not found"}
```

Request URL

```
http://127.0.0.1:8000/tasks/3
```

Server response

Code

Details

404

Error: Not Found

Undocumented

Response body

```
{
  "detail": "Task Not Found"
}
```

✖ Scenario 6: Get Non-Existing Task

Response

```
{"detail": "Task not found"}
```

Request URL

```
http://127.0.0.1:8000/tasks/3
```

Server response

Code	Details
404	Error: Not Found

Undocumented

Response body

```
{  
  "detail": "Task Not Found"  
}
```

GET ALL:

Request URL

```
http://127.0.0.1:8000/tasks
```

Server response

Code	Details
------	---------

200

Response body

```
[  
  {  
    "id": 1,  
    "title": "Pay Water Bill",  
    "description": "Pay BISSB bill",  
    "completed": true  
  }  
]
```