

Trello-like Task Management Documentation (Backend)

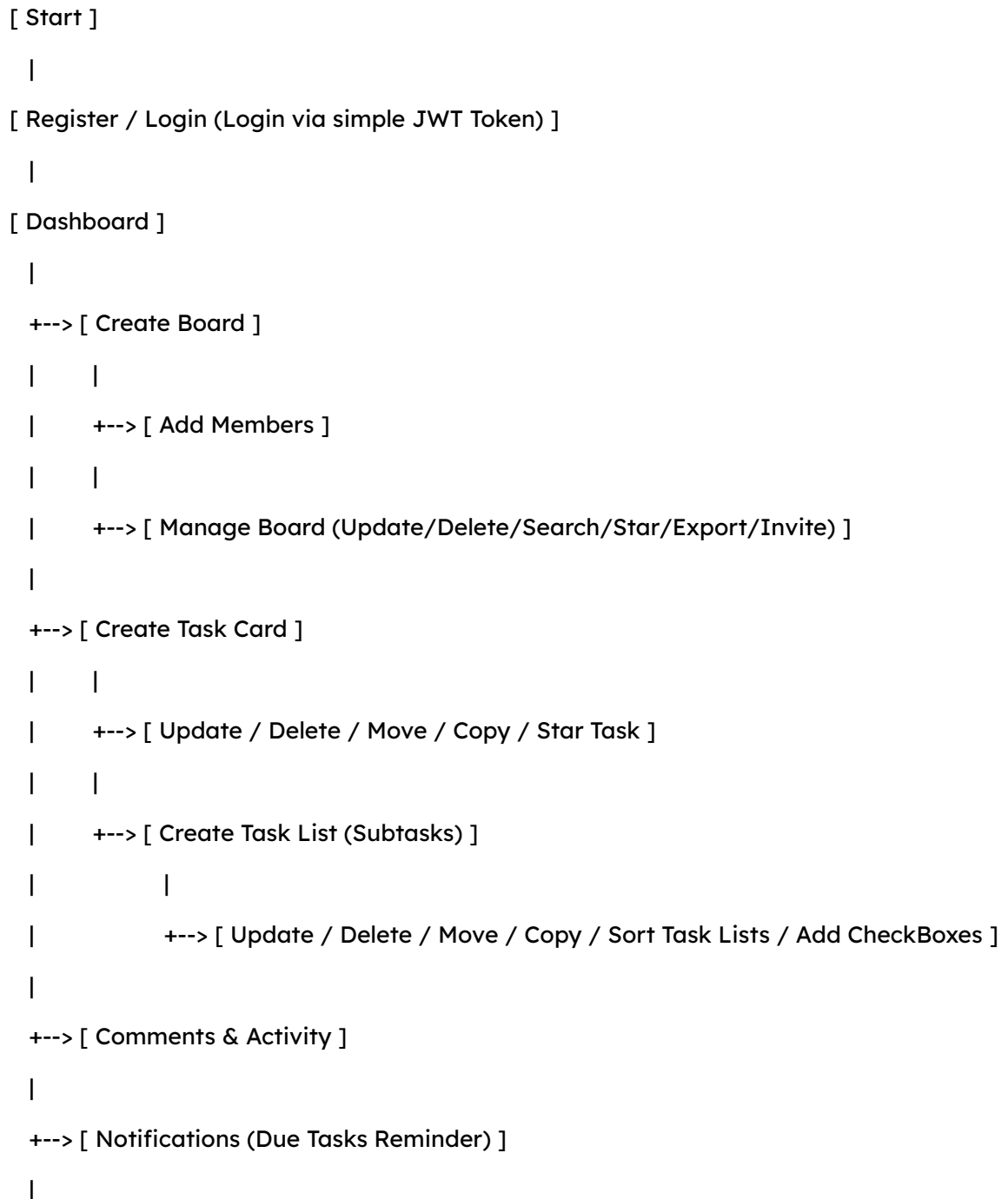
- Function-based API Task.
- This Task management will handle all users' tasks on one Main Task Board and will be able to add/assign their team members to and create a Project task environment
- The Trello Task Management allows users to manage boards, tasks, and collaborate with team members.
- The API uses JWT Authentication and supports role-based permissions (Admin, Member, Super User).
- Backend Tools and Framework used in this project Python(3.12.3), Django(4.2.23), Rest Framework(3.16.6) and MySQL workbench database, Postman (for testing APIs)

Project Folder Structure:

```
Trello-Task-Management/  
| — manage.py          # Django project manager  
| — requirements.txt    # Dependencies  
| — README.md          # Project overview  
| — LICENSE            # License file  
| — exported log data.json # Exported activity logs  
|  
| — trello_project/     # Main project settings  
|   | — __init__.py  
|   | — settings.py  
|   | — urls.py
```

```
| |— wsgi.py
| |— asgi.py
|
|— trello_app/      # Core application
| |— __init__.py
| |— admin.py       # Django admin panel
| |— apps.py        # App configuration
| |— models.py      # Database models
| |— serializers.py  # DRF serializers
| |— urls.py        # API routes
|
| |— views/         # API views
| | |— board.py     # Board APIs
| | |— task.py      # Task APIs
| | |— authentication.py # User & Authentication APIs
| | |— __init__.py
| |
| |— migrations/    # Django migration files
|
|— media/           # Media storage
| |— exports/       # Exported files
| |— task_attachment/ # Task attachments
| |— task_images/   # Task images
|
|— myenv/           # Virtual environment
|
```

Flow Diagram of Trello Task Management:



[End]

Functions List

→ Total 38 functions divided into Authentication, Board management, Task Management.

★ Authentication Functions (12)

1. register_user() - Register a new user
2. login_user() - Login user
3. forgot_password_sent_email() - Send forgot password email
4. reset_password() - Reset user password
5. update_profile() - Update user profile
6. delete_profile() - Delete user profile
7. search_view_all_users() - Search or view all users
8. view_my_profile() - View my profile
9. show_activity() - Show user activity
10. create_comment() - Create a comment
11. edit_comment() - Edit a comment
12. delete_comment() - Delete a comment

★ Board Functions (12)

13. create_board() - Create a board
14. update_board() - Update a board
15. delete_board() - Delete a board
16. add_member_to_board() - Add member to board
17. remove_member_from_board() - Remove member from board

- 18. view_board_members() - View board members
- 19. get_my_board() - Get my boards
- 20. search_boards() - Search boards
- 21. star_board() - Star a board
- 22. print_export_share() - Print / Export / Share board
- 23. share_invite() - Share invite link
- 24. notifications() - Show notifications

★ **TaskCard Functions (07)**

- 25. create_task() - Create a task card
- 26. update_task() - Update a task card
- 27. delete_task() - Delete a task card
- 28. search_tasks_by() - Search tasks
- 29. star_task_card() - Star a task card
- 30. copy_task_card() - Copy a task card
- 31. move_task_card_to_other_board() - Move task card to another board

★ **TaskList Functions (08)**

- 32. create_task_lists() - Create a task list
- 33. update_tasks_lists() - Update a task list
- 34. tasks_lists_delete() - Delete a task list
- 35. copy_task_list() - Copy a task list
- 36. move_task_list() - Move a task list to another board
- 37. sort_task_lists() - Sort task lists
- 38. tasklist_checklist_progress() - Add CheckBoxes in Tasklists and show progress(%) of it.

API Endpoint Reference

❖ Authentication & User Management

1. register_user()

- Endpoint: POST /register_user/
- Description: Register a new user (username, email, password are required)
- Authentication: Not Required
- Request body: {

```
"username": "vills",    // string (unique username)
"email": "vills@example.com",    // string (valid email)
"password": "StrongPass@123",    // string ( min 8 chars)
"full_name": "Vills Patel",    // string (optional full name)
"profile_image": "profile.jpg"    // string (image file name / URL)
}
```

2. login_user()

- Endpoint: POST /login_user/
- Description: Login user and generate JWT token
- Authentication: Not Required
- *Request body:*

```
{
  "username": "vills",    // string (username used in register)
  "password": "StrongPass@123" // string (username used in register)
}
```

3. forgot_password_sent_email()

- Endpoint: POST /forgot_password_sent_email/
- Description: Initiate password reset process and send email
- Authentication: Not Required
- Request body:


```
{  
  "email": "vills@example.com" // string (registered email required)  
}
```

4. reset_password()

- Endpoint: POST /reset_password/
- Description: Complete password reset with token
- Authentication: Not Required
- Request body:


```
{  
  "email": "vills@example.com", // string (registered email)  
  "password": "NewPass@123", // string (new strong password)  
  "OTP": "458921" // string or int (OTP sent via email)  
}
```

5. update_profile()

- Endpoint: POST /update_profile/
- Description: Update current user's profile information
- Authentication:  Required
- Request body:

```
{  
  "username": "newvills", // string (updated username)  
  "email": "newvills@example.com", // string (updated email)  
  "password": "Updated@123", // string (new password)  
  "full_name": "Vills Updated", // string (new full name)  
  "profile_image": "new_profile.jpg" // string (updated profile pic)  
}
```

6. delete_profile()

- Endpoint: POST /delete_profile/
- Description: Delete current user's account
- Authentication:  Required
- Request body:

```
{  
  "user_id": 12 // int (logged-in user's ID)  
}
```

7. search_view_all_users() - Only Super User can perform this action

- Endpoint: POST /search_view_all_users/
- Description: Search specific users by name/email or view all users
- Authentication: ☒ Required
- Request body:

```
{  
  "username": "john", // string (optional filter by username)  
  "email": "john@example.com", // string (optional filter by email)  
  "full_name": "John Doe" // string (optional filter by full name)  
}
```

8. view_my_profile()

- Endpoint: POST /view_my_profile/
- Description: View current user's profile details
- Authentication: ☒ Required
- Request body:

// No request body needed (JWT user context used)

9. show_activity()

- Endpoint: POST /show_activity/
- Description: View recent user activity and actions, Board admins can view his members activity, members or normal user can see his own activity only.
- Authentication: ☒ Required
- Request body:

// No extra body; activity fetched based on logged-in user

10. create_comment()


- Endpoint: POST /create_comment/
- Description: Add a comment to a task or board
- Authentication: ☒ Required

- Request body:

```
{
  "tasklist_id": 5, / int (ID of tasklist)

  "comment_text": "This task needs to be completed soon." // string
}
```


11. edit_comment()

- Endpoint: POST /edit_comment/
- Description: Edit an existing comment
- Authentication:  Required
- Request body:

```
{
  "comment_id": 3, // int (comment to edit)





  "comment_text": "Updated comment content." // string
}
```

12. delete_comment()

- Endpoint: POST /delete_comment/
- Description: Delete a specific comment
- Authentication:  Required
- Request body:

```
{
  "comment_id": 3 // int (comment to delete)
}
```

❖ Board Management Endpoints

Function	Normal User	Board Member	Board Admin	Super User
Create Board				

Delete Board	✗	✗	✓	✓
Search All Users	✗	✗	✗	✓
Add Member to Board	✗	✗	✓	✓

13. create_board()

- Endpoint: POST /create_board/
- Description: Create a new board
- Authentication: ☒ Required
- Request body:

```
{
  "title": "Project Alpha", // string (board name)
  "description": "Board for managing Alpha tasks", // string
  "visibility": "private", // string ("private" or "public")
  "members": ['user@gmail.com', 'user2@gmail.com', 'user3@gmail.com'] // list of
emails in string
}
```


14. update_board() Only Board Admin can perform this action

- Endpoint: POST /update_board/
- Description: Update board details
- Authentication: ☒ Required
- Request body:

```
{
  "board_id": 1, // int
  "title": "Project Alpha Updated", // string
  "description": "Updated board description", // string
  "visibility": "public" // string
}
```


```
}
```

15. delete_board() Only Board Admin can perform this action

- Endpoint: POST /delete_board/
- Description: Delete a specific board
- Authentication:  Required
- Request body:


```
{  
  
  "board_id": 1 // int  
  
}
```

16. add_member_to_board() Only Board Admin can perform this action

- Endpoint: POST /add_member_to_board/
- Description: Add user to board as a member via enter board id and email of user's
- Authentication:  Required
- Request body:


```
{  
  
  "board_id": 1, // int(board ID)  
  
  "email": "newuser@example.com" // string (user email)  
  
}
```

17. remove_member_from_board() Only Board Admin can perform this action

- Endpoint: POST /remove_member_from_board/
- Description: Remove user to board as a member via enter board id and email of user's
- Authentication:  Required
- Request body:

```
{  
  
  "board_id": 1,  
  
  "email": "removeuser@example.com"  
  
}
```


18. view_board_members()

- Endpoint: POST /view_board_members/
- Description: List all members of a specific board
- Authentication:  Required
- Request body:

```
{
  "board_id": 1 // int (board ID)
}
```

19. get_my_board()

Users can perform Get data, Sort, Search, operation in this function.

- Endpoint: POST /get_my_board/
- Description: View board with all tasks and details
- Authentication:  Required
- Request body:


```
{
  "board_id": 1,
  "board_title": "Project Alpha", // string
  "board_description": "Main project board for tracking tasks", // string
  "no_members": 5, // int
  "complated": false, // boolean
  "task_title": "Design Homepage", // string
  "task_description": "Create UI for homepage", // string
  "created_by": 10, // int (user_id)
  "tasklist_title": "UI Tasks", // string
  "tasklist_description": "Frontend related tasks", // string
  "priority": "High", // string
  "label_color": "#FF5733", // string (hex code) or ("red")
  "start_date": "2025-08-30", // string
  "due_date": "2025-09-05", // string (null if not set)
```

```

    "is_completed": false,          // boolean (0/1 int)
    "updated_by": 102,              // int (or "102" string)
    "assigned_to": [103, 104],      // list of int
    "is_starred": true,             // boolean
    "no_due": false,                // boolean
    "overdue": true,                // boolean
    "due_today": false,             // boolean
    "due_tomorrow": true,           // boolean
    "due_next_week": false,         // boolean
    "due_on_this_month": true,      // boolean
    "due_on_this_week": false       // boolean
}

```

20. search_boards()


- Endpoint: POST /search_boards/
- Description: Search and filter boards by name or criteria
- Authentication:  Required
- Request body:

```

{
    "board_id": 1,      // int
    "board_title": "Project Alpha", // string
    "board_description": "Alpha Board", // string
    "visibility": "public" // string
}

```

21. star_board()


- Endpoint: POST /star_board/
- Description: Mark a board as favorite/starred for quick access
- Authentication:  Required
- Request body:

```

    {
      "board_id": 1, // int
      "is_starred": true // boolean
    }

```

22. print_export_share()


- Endpoint: POST /print_export_share/
- Description: Export board tasks/data (JSON/CSV/Excel) and optionally share with others
- Authentication:  Required
- Request body:

```

    {
      "task_id": 10, // int (optional, if specific)
      "format": "JSON" // string ("JSON"|"CSV"|"Excel")
    }

```

23. share_invite()


- Endpoint: POST /share_invite/
- Description: Generate a shareable link or invite for a board
- Authentication:  Required
- Request body:

```

    {
      "board_id": 1,
      "email": "inviteuser@example.com" // string
    }

```

24. notifications()

- Endpoint: POST /notifications/
- Description: Retrieve all notifications related to the user's due tasks before 2 days. This setup is temporary for backend and practice.
- Authentication:  Required
- Request body:

// No body needed (fetch user notifications automatically)

❖ Task Management Endpoints

25. create_task()

- Endpoint: POST /create_task/
- Description: Create a new task card under a board
- Authentication: ☒ Required
- Request body:

```
{  
  
  "title": "Design Homepage", // string  
  
  "description": "Create a responsive homepage design", // string  
  
  "board_id": 1 // int  
}
```

26. update_task()

- Endpoint: POST /update_task/
- Description: Update task card details
- Authentication: ☒ Required
- Request body:

```
{  
  
  "task_id": 10, // int  
  
  "title": "Design Homepage Updated", // string (optional)  
  
  "description": "Updated description for homepage", (optional)  
  
  "board_id": 1,  
  
  "is_completed": false (optional)  
}
```

27. delete_task()

- Endpoint: POST /delete_task/
- Description: Delete a specific task card

- Authentication: ☒ Required
- Request body:

```
{
  "task_id": 10 // int
}
```

28. search_tasks_by()

- Endpoint: POST /search_tasks_by/
- Description: Search tasks by keyword in title/description
- Authentication: ☒ Required
- Request body:

```
{
  "title": "Design", // string (keyword)
  "is_starred": true // boolean
}
```

29. star_task_card()

- Endpoint: POST /star_task_card/
- Description: Mark a task card as starred/favorite
- Authentication: ☒ Required
- Request body:

```
{
  "task_id": 10
}
```

30. copy_task_card()


- Endpoint: POST /copy_task_card/
- Description: Create a duplicate of an existing task card within a board
- Authentication: ☒ Required
- Request body:

```
{
  "task_id": 10
}
```



```
}
```


31. move_task_card_to_other_board()

- Endpoint: POST /move_task_card_to_other_board/
- Description: Move a task card from one board to another board
- Authentication:  Required
- Request body:

```
{  
  
  "task_id": 10,  
  
  "new_board_id": 2  
}
```


❖ Task List Management Endpoints

32. create_task_lists()

- Endpoint: POST /create_task_lists/
- Description: Create a new task list (subtask) under a task card
- Authentication:  Required
- Request body:


```
{  
  
  "task_id": 10,  
  
  "tasklist_title": "UI Components",  
  
  "tasklist_description": "Work on header and footer",  
  
  "priority": "high",  
  
  "label_color": "blue",  
  
  "start_date": "2025-08-30",  
  
  "due_date": "2025-09-05",  
  
  "is_completed": false,  
  
  "assigned_to": 2  
}
```

33. update_tasks_lists()

- Endpoint: POST /update_tasks_lists/
- Description: Update the details of a task list
- Authentication:  Required
- Request body:

```
{  
  
  "task_list_id": 5,  
  
  "tasklist_title": "UI Components Updated",  
  
  "tasklist_description": "Work on full layout",  
  
  "priority": "medium",  
  
  "label_color": "green",  
  
  "start_date": "2025-08-31",  
  
  "due_date": "2025-09-10",  
  
  "assigned_to": 3  
}
```

34. tasks_lists_delete()

- Endpoint: POST /tasks_lists_delete/
- Description: Delete a specific task list from a task card
- Authentication:  Required
- Request body:

```
{  
  
  "task_list_id": 5  
}
```

35. copy_task_list()

- Endpoint: POST /copy_task_list/
- Description: Duplicate an existing task list
- Authentication:  Required
- Request body:

```
{
```

```
"task_list_id": 5 // int (ID of the task list to copy)

}
```

36. move_task_list()

- Endpoint: POST /move_task_list/
- Description: Move a task list to another task card
- Authentication: ☒ Required
- Request body:

```
{

"task_list_id": 5, // int (ID of the task list to move)

"new_task_card_id": 12 // int (ID of the board where list will be moved)

}
```

37. sort_task_lists()

- Endpoint: POST /sort_task_lists/
- Description: Reorder task lists inside a task card
- Authentication: ☒ Required
- Request body:

```
{

"new_task_card_id": 12

}
```

38. tasklist_checklist_progress()

- Endpoint: POST /task_list_checklist_progress/
- Description: Add checkboxes in Task list and mark them True/False and track its progress out of 100%
- Authentication: ☒ Required
- Request body:

```
{

"task_list_id": "1",

"checklist_items": [

{ "name": "option1", "is_checked": true},


```

```
    {"name": "option2", "is_checked": false}  
  ]  
}
```

⇒ Frameworks and Libraries requirements for this project...

```
asciimatics==1.15.0  
asgiref==3.9.1  
charset-normalizer==3.4.3  
diff-match-patch==20241021  
Django==4.2.23  
PyJWT==2.10.1  
django-filter==25.1  
django-import-export==4.3.9  
django-rest-framework==3.16.0  
django-rest-framework-simplejwt==5.5.1  
et_xmlfile==2.0.0  
mariadb==1.1.13  
mysqlclient==2.2.7  
numpy==2.3.2  
openpyxl==3.1.5  
packaging==25.0  
pandas==2.3.2  
pillow==11.3.0  
pyfiglet==1.0.3  
pypdf==6.0.0  
python-dateutil==2.9.0.post0  
pytz==2025.2  
pywin32==311  
reportlab==4.4.3  
six==1.17.0  
sqlparse==0.5.3  
tablib==3.8.0  
tzdata==2025.2
```

wcwidth==0.2.13