

## Summary

The TODO Management System is designed to help developers efficiently track and manage their tasks within the codebase. By utilizing a specific TODO comment syntax, the system identifies tasks, creates corresponding GitLab issues, and sends notifications to the designated users via MS Teams. Additionally, the system provides timely alerts to ensure tasks are completed before their deadlines.

## Scope

### TODO Comment Syntax

Developers can add TODO comments in their code using the following syntax:

TODO: <username>: <current\_date>: <days>: <optional\_message>

- TODO Denotes that the comment is for the TODO Management System.
- <username> The username of the person responsible for the TODO.
- <current\_date> The starting date for the TODO in YYYY-MM-DD format.
- <days> The number of days allotted to complete the TODO.
- <optional\_message> An optional description of the task.

### Example

```
// TODO: @john_doe: 2024-06-01: 10: Refactor the login module to improve security.
```

### Functionality

1. Parsing TODO Comments: The system scans the codebase to identify TODO comments following the specified syntax.
2. ESLint Integration: ESLint lint rules are integrated to enforce the syntax of TODO comments.
3. GitLab Issue Creation: For each TODO comment, a GitLab issue is created, containing the details of the task.
4. MS Teams Notification: The assigned user receives a notification on MS Teams when a new TODO is created for them.
5. Alert System: The system sends alerts to the user 5 days before the TODO's deadline to ensure timely completion.

### Components

1. TODO Parser
  - Scans the codebase for TODO comments.
  - Extracts details such as username, start date, days, and the optional message.

2. ESLint Integration
  - Integrates ESLint lint rules to enforce the specified syntax for TODO comments.
  - Ensures developers follow the correct syntax, reducing errors and improving consistency.
3. GitLab Issue Creator
  - Creates a GitLab issue based on the parsed TODO details.
  - Assigns the issue to the specified user.
4. MS Teams Notifier
  - Sends a notification to the user on MS Teams when a new TODO is assigned.
5. Alert System
  - Tracks the deadlines of TODOs.
  - Sends alerts to the user 5 days before the TODO is due.

## Integration Points

1. Codebase: The system needs access to the code repository to scan for TODO comments.
2. GitLab: Integration with GitLab to create and manage issues.
3. MS Teams: Integration with MS Teams to send notifications and alerts to users.
4. ESLint: Integration with ESLint to enforce TODO comment syntax rules.

## Benefits

- **Efficient Task Management:** Automatically tracks and manages tasks within the codebase.
- **Timely Notifications:** Keeps users informed of their tasks and approaching deadlines.
- **Improved Collaboration:** Facilitates better communication among team members regarding task assignments.
- **Syntax Enforcement:** Ensures consistent and correct use of TODO comments through ESLint lint rules.

## Conclusion

The TODO Management System aims to streamline the process of tracking and managing development tasks directly from the codebase. By integrating with GitLab, MS Teams, and ESLint, it ensures that developers are always aware of their responsibilities and deadlines, thereby improving overall productivity and collaboration.