Project Documentation

Project Background:

Sprint Management System for Quikr - Indian classified advertising platform, a product-based company - Bengaluru HQ. It is used to manage all the local activities within the company. Made using CRUD via Python - Django Framework.

Project Business Case:

- Management within the company will improve.
- Everything related to day to day software work of the technology team will be under one umbrella.
- Client and Employee interaction will increase.
- This system will save money spent on using the Jira System available online, which costs a lot of money to the company.

Technologies Implemented:

- Django Framework:
    - Extensive use of Django ORM for data retrieval and manipulation.
    - Django MVT: The MVT (Model View Template) is a software design pattern. It is a collection of three important components Model View and Template. The Model helps to handle database. It is a data access layer which handles the data.
    - Django Authentication System: Django authentication provides both authentication and authorization together and is generally referred to as the authentication system.
    - Django Permissions

- MySQL Database: Tables created using Django Models and data submitted using Query forms.

- SSO Integration: Integrated the local database of the project with the company database using their SSO (Single Sign-On), to provide better security.
- Ajax: To allow web pages to be updated asynchronously by exchanging small amounts of data with the server behind the scenes.

- JSON: Used to pass data dynamically from Django Controller Views to the templates and JavaScript files.

- Chart.JS:

  Used to implement the following main graphs:

  - Developers Overview Graph: Represents the following sprint wise (The following are selectable from a dropdown):
    - Each developer's assigned bandwidth, assigned story points and completed story points.
    - Skill Wise Graph of all developers showing the progress as stated above.
    - Progress of all developers within a sprint irrespective of their skill.
  - Sprint Burndown Graph: Represents the total amount of story points available on the first day of the sprint and depicts the story points left every day thereon. This helps in identifying the total amount of points completed per day and the total amount of points left per day.
  - Story Status Donut Graph: Represents the total number of stories with their current status i.e. shows the number of stories based on their status.

- JavaScript and jQuery:
  - JavaScript Modals and other Animations
  - Navigation Bar
  - jQuery Date picker UI: The jQuery UI Date picker is a highly configurable plugin that adds date picker functionality to your pages. You can customize the date format and language, restrict the selectable date ranges and add in buttons and other navigation options easily.

- HTML, CSS:
  - Bootstrap Date picker:
  - Bootstrap forms: Templates created using Django logic at the backend.
  - Data Table: Forms and tables have been used with other functionalities of HTML and CSS.

Software Used:

- PyCharm
- MySQL Workbench
- GitHub PC

Project Scope:

- Can replace the original Jira System (available online), within the company in the future.

Project Responsibility Assignment (RACI Matrix):

- Via Roles:
    - Administrator or Superuser:
        - Can access the superuser interface under the profile dropdown.
        - Can create new projects.
        - Can move stories from one sprint to another.
        - Can change and create new permissions.
        - Can create new user groups and users as well.
        - Has access to everything within the project.
    - Product Manager:
        - Can create new sprints, within a specific project.
        - Can access any sprint within any project.
        - Can view, edit and delete progress of a developer within a specific sprint.
        - Can add, edit, view, delete a story within a specific sprint.
        - Can comment on stories.
        - Can assign as well as change the bandwidth of a developer within a specific sprint.
        - Can view the end sprint report.
        - Can change the progress and status of a story within a specific sprint.
    - Developer:
        - Developer via Roles has multiple skills from which he/she can choose during registration on to the project:
            - Java
            - PHP
            - HTML
            - QA
        - Can only edit and change his own progress.

        - Can view progress of everyone graphically at the home page.
        - Can comment on stories.
        - Can view the end sprint report.
        - Can assign himself a story if it is unassigned.
        - Can change own progress and status of the story he is assigned.

- Via Groups and Permissions:
    - Permissions can be assigned to groups as well as specific users. Permissions can also be removed as per choice.
    - Permissions are available in the superuser interface under authentication and authorization.
    - Groups for implying permissions within the project are as follow:
        - Admin: Has all permissions within the project.
        - Product Manager: Has limited permissions.
        - Developer: Has limited permissions.
        - QA: Has limited permissions.
    - Custom permissions that have been created beforehand are(Permissions provided below are generalized i.e. some permission examples will be add story, delete sprint, etc.):
        - Add
        - View
        - Edit or Change
        - Delete

Working and Functionalities:

- SSO Login:
    - To enter the project, you need to login via SSO into the project.
    - The landing page is a register as SSO login redirect page.
    - Clicking on the sidebar will toggle the sidebar and we can see the login option.
    - On clicking the login option, the page will be redirected to the following quikr accounts-stage SSO login page:

        http://192.168.124.123:13000/identity/v1/auth?auth=Basic%20JaA%2BKUfutRpIkHY54Scvn9B3XAbg3sq3enrRREIv344%3D&clientId=SprintManagement&redirectUri=http%3A%2F%2F127.0.0.1%3A8000%2F&responseType=code&scope=openid

- Logout:
    - Clears the cookies and csrf token on logout.

- Register:
    - On first time SSO login into the project you will be redirected back to the register page.
    - After the register form is filled out with correct details, the user is redirected to the home page of the project.

- Project Creation:
    - Administrator:
        - A project consists of several sprint.
        - During the project creation the administrator specifies the:
            - Project Name
            - Administrator's Name
            - Developers allowed within the project
            - Managers of the project
    - Product Manager and Developers: Do not have permission to create a project.

- Sprint Creation:
    - Administrator and Product Manager:
        - A sprint comes within a project.
        - During sprint creation the following are specified:
            - Sprint Name
            - Sprint Start Date
            - Sprint End Date for Developer
            - Sprint End Date for QA
            - Pre-Determined holidays, excluding the weekends
    - Developers: Do not have permission to create a sprint.

- Story Creation:
    - Administrator and Product Manager:
        - A sprint has several stories.
        - During the story creation the following are specified:
            - Story Name
            - JIRA ID
            - Story Description Link
            - Brief Description
    - Developers: Do not have permission to create a story.

- Bandwidth Allocation:
    - Administrator and Product Manager:
        - Bandwidth is allotted to developers after story creation, based on the story points available currently.
        - During the bandwidth allocation the following are specified:
            - Planned Leaves
            - Unplanned Leaves
            - Velocity Factor
        - It helps in the simultaneous calculation of:
            - Available Bandwidth
            - Available Story Points
            - Assigned Story Points
            - Delta
    - Developers: Do not have permission to bandwidth allocation.

- Story and Story Points Allocation:
    - Administrator and Product Manager:
        - Story Points are allotted to developers based on their last sprint performance and available bandwidth in the current sprint.
        - In the story points allocation interface, there are 4 dropdowns based on skills specified at the time registration.
        - Each dropdown consists only those developers which have been assigned to the current project and have the dropdown skill.
        - During the story points allocation the following are specified:
            - Story Points to be allocated.
            - Developer Name to whom the story points are being allocated.
            - Skill for which the points are being allocated.
    - Developers:
        - A developer does not have the permission to assign himself a story if it has already been assigned to another developer.
        - If a story is unassigned then the developer has the permission to assign himself the story from the end sprint page.

- Progress:
    - Administrator and Product Manager:
        - After the story points have been allocated to developers, the manager can now keep track of progress been done on the stories.
        - Can check as well as change the of progress of developers within the sprint from the progress page.
        - Can also change the overall status of the story.

- Developer:
    - After the story points have been allocated to developers, the developer can now change and check his or her own daily progress on the stories assigned.
    - Can change the overall status of a story.
    - Can change his points left if the developer thinks that the points left in the story are wrong. The sprint burndown graph will be updated accordingly.
    - During progress change the following are specified:
        - Date of progress.
        - Type of Progress:
            - Dev - Yellow
            - CR Fix - Blue
            - Release Support - Green
            - QA Support - Orange
        - Amount of time spent on the progress.
    - Progress can be tracked from the last date checker in the same row as the story.

- End Sprint Report: Used to view the status of all stories within the project.
    - Administrator:
        - Can move stories whose status is neither 'Complete' nor 'Pending Deployment', for the current sprint to any sprint whose end date has not yet arrived.
    - Developer: Can assign himself a story from the project if its status is 'Unassigned'.

- Other Functionalities:
    - Detailed Story:
        - Can be accessed from the Stories, Progress and Sprint Report Pages.
        - Shows brief description of the story as well link to detailed description of the story.
        - Can change the brief description.

    - Story Comments:
        - Each story has the option of retaining comments.
        - Anyone can comment on a story.
        - Comments are shown in the detailed story page.
        - Each comment has the following:
            - Display Picture of the user commenting.
            - Time and Date of Comment.
            - Comment
            - Commenting User's Name.

- Tabular Story History:
  - Shows up in the detailed story page.
  - Tabular Story Table keeps a record of:
    - Each progress by a user in the order of date of progress.
    - Developer's Name
    - Work Done on the given Date
    - Date of User Change for the story
    - Date of First User Assignment to the story.

- Moving Stories:
  - Only the administrator has the permission to move Incomplete stories from one sprint to another if the target sprint's end date has not yet arrived.

- Graphical Progress:
  - Shows up in the home page.
  - Implemented using Chart.JS
  - Used to implement the following main graphs:
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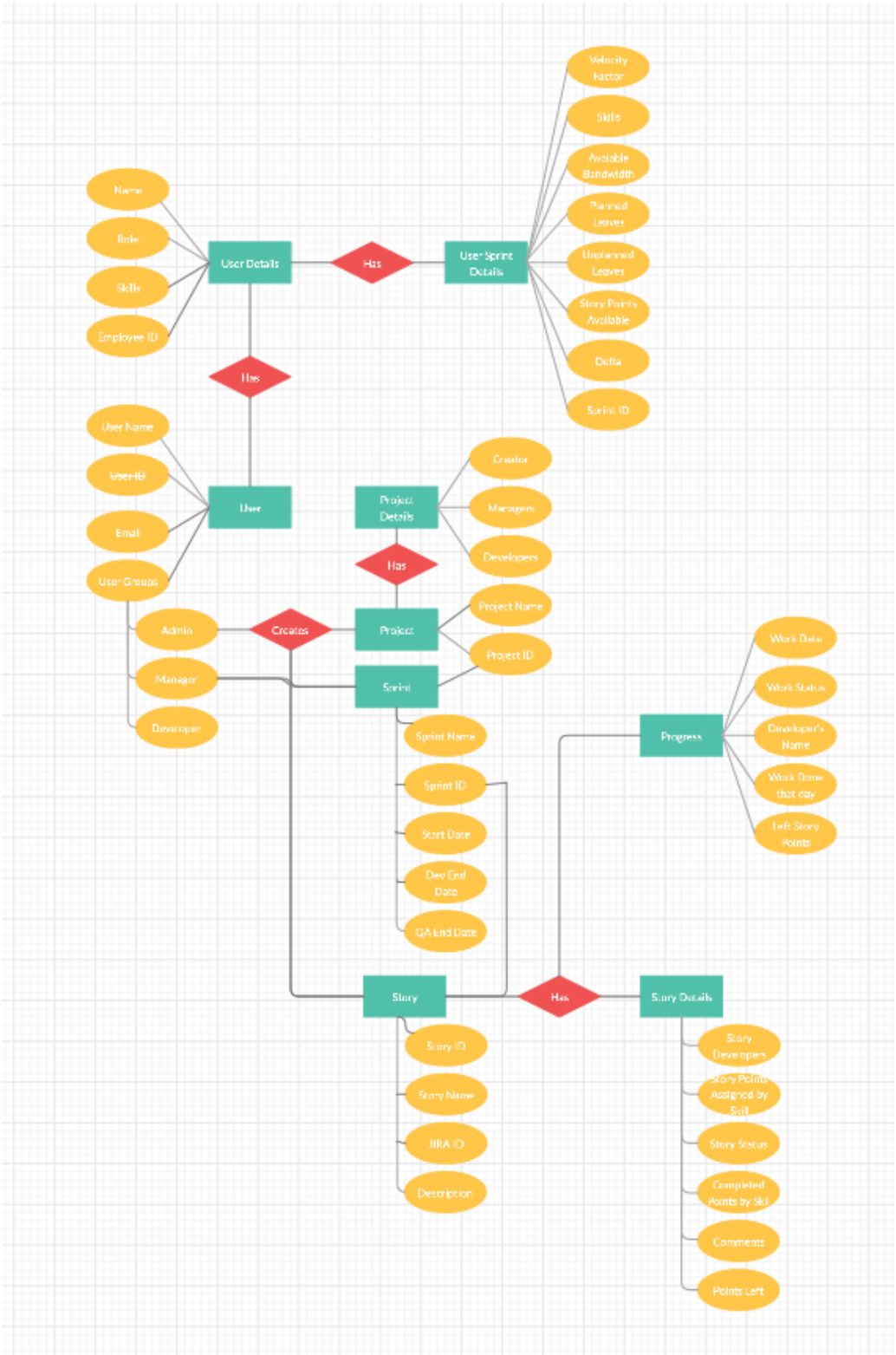
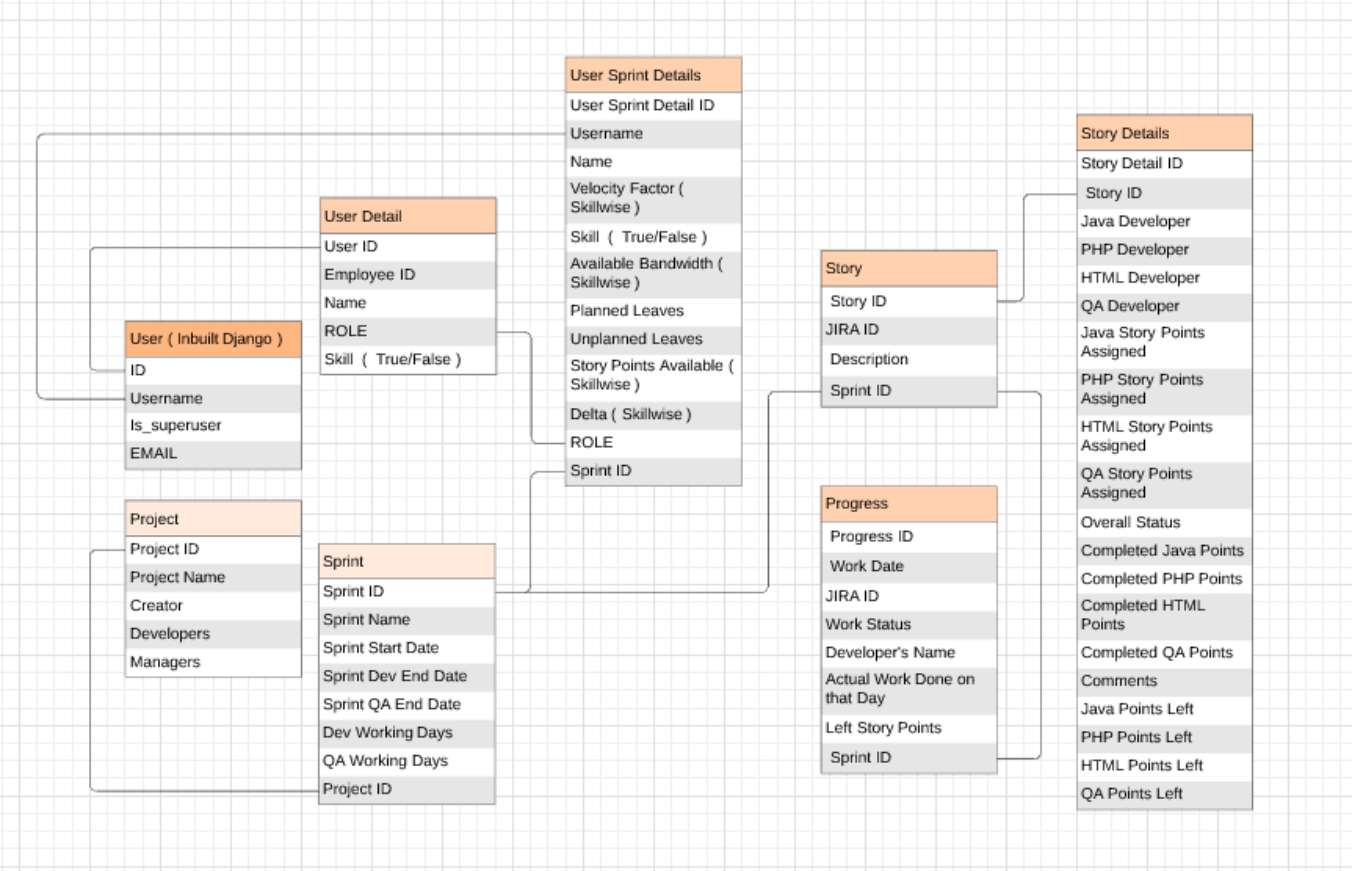
- Profile:
  - Each user has his or her own profile.
  - Can be accessed via profile dropdown in the navigation bar.
  - Can change profile picture.
  - Can update personal information:
    - Username
    - Skills

Entity Relationship Diagram:





Project Constraints:

- History of display pictures is not kept.
- No option to edit or delete comments.

Assumptions:

- The project will only be used by employees of the company and clients of the company.
- Human resource availability: All key project team members are available and have the necessary skills and knowledge to work on the project.