

CMSC388T

Project Management Tools

Today's Lecture

1

Pull Requestss

How do you review code?

2

Purpose of Tools

Why do we use project management tools and what advantages do they have?

3

Github Project Boards

How does github incorporate these project management tools?



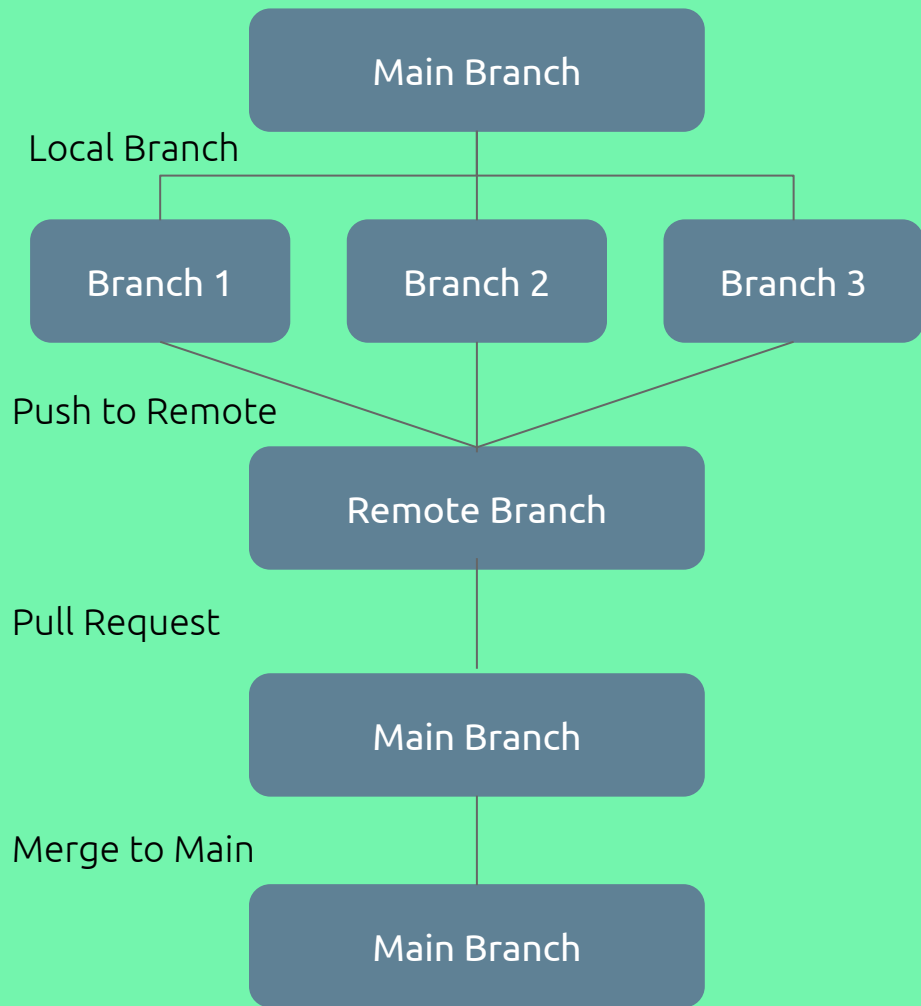
- **Branching, Pull Requests**

Pull requests, Review, and Fork
When do we Branch and Why is it useful?

Branching

Allows for multiple team members to modify code and work on different assignment for a project.

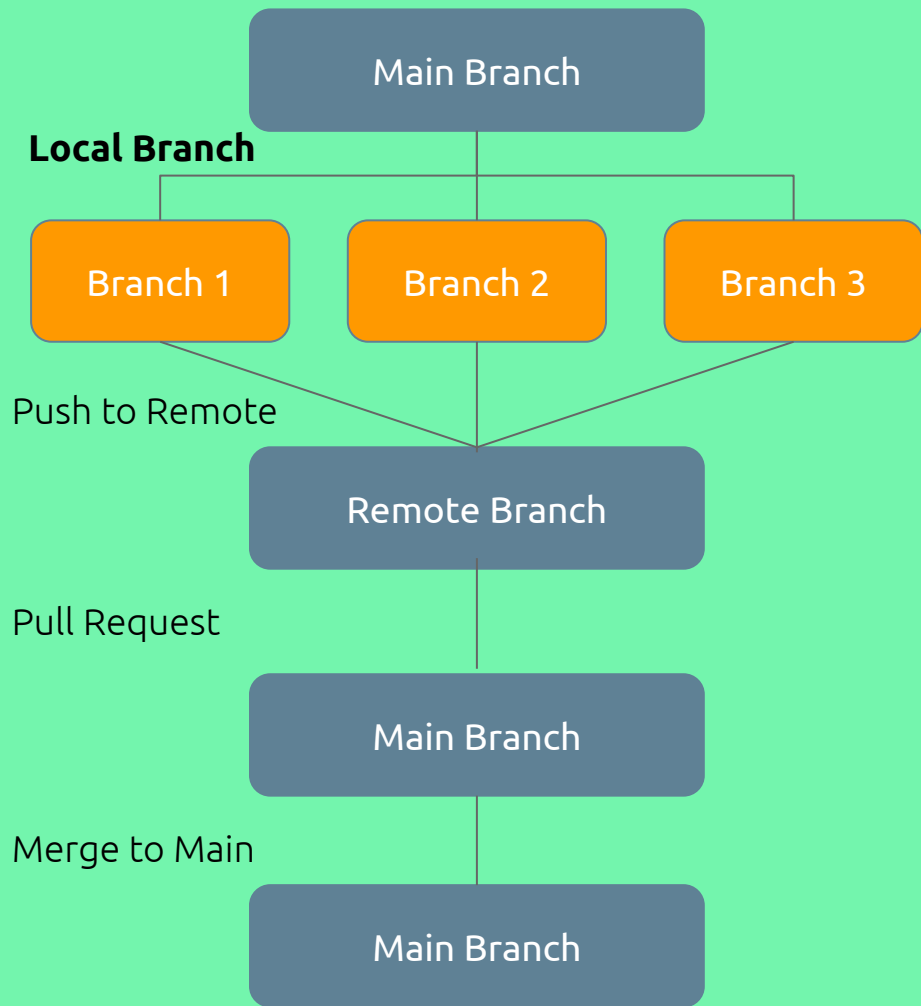
Makes a local copy of the current code that allows a team member to modify and then push to be merged with the main branch



1. Create Local Branch

Copies the main branch to allow user to make local changes and team members to work on the same project simultaneously

```
git checkout [branch-name] -b
```

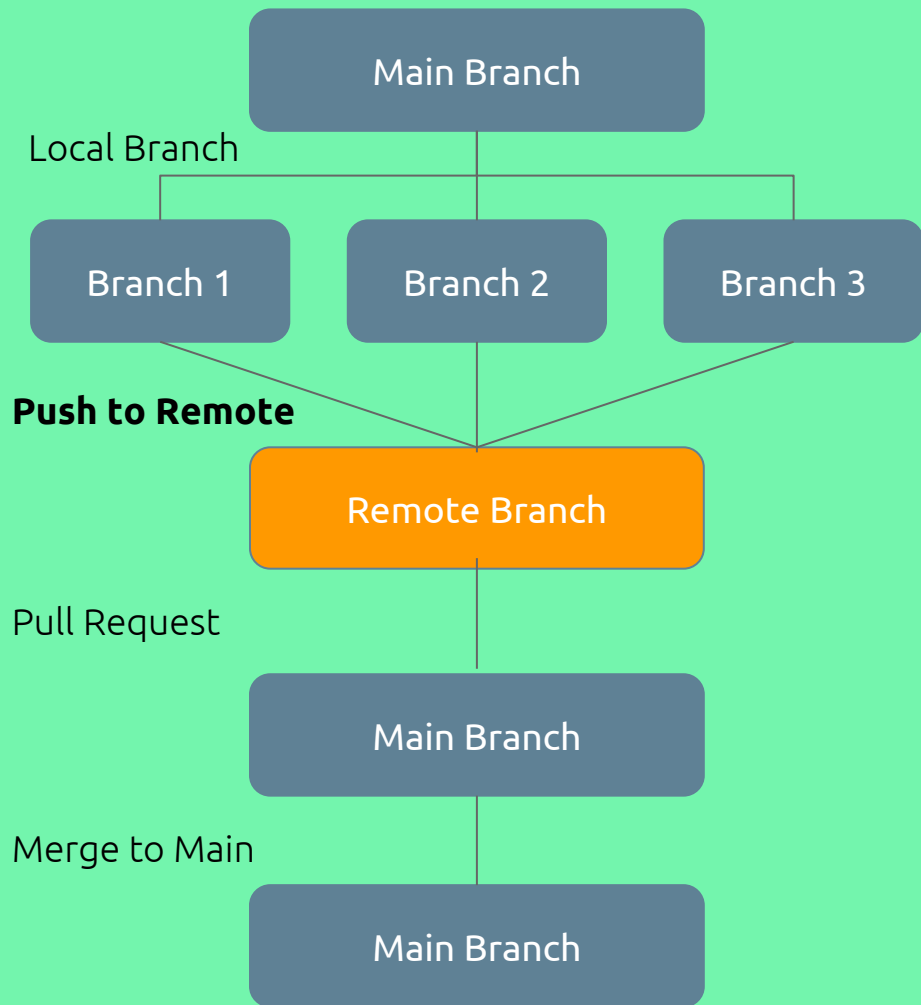


2. Push to Main

Push the local branch to the repository which will make the branch to be visible to all teammates.

Note: pushing the branch to the remote does not mean merging with the main branch

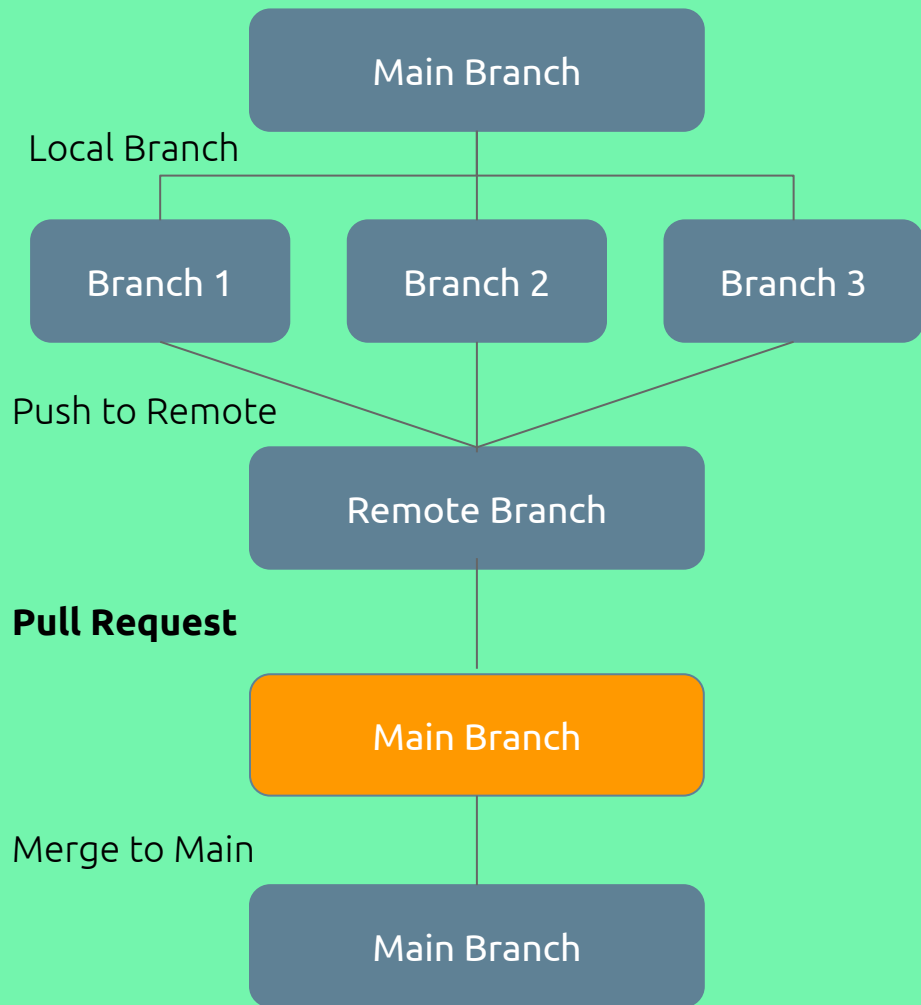
```
git push -u origin [branch-name]
```



3. Pull Request (PR)

Create a pull request and assign reviewers to review and make comments on the changes.

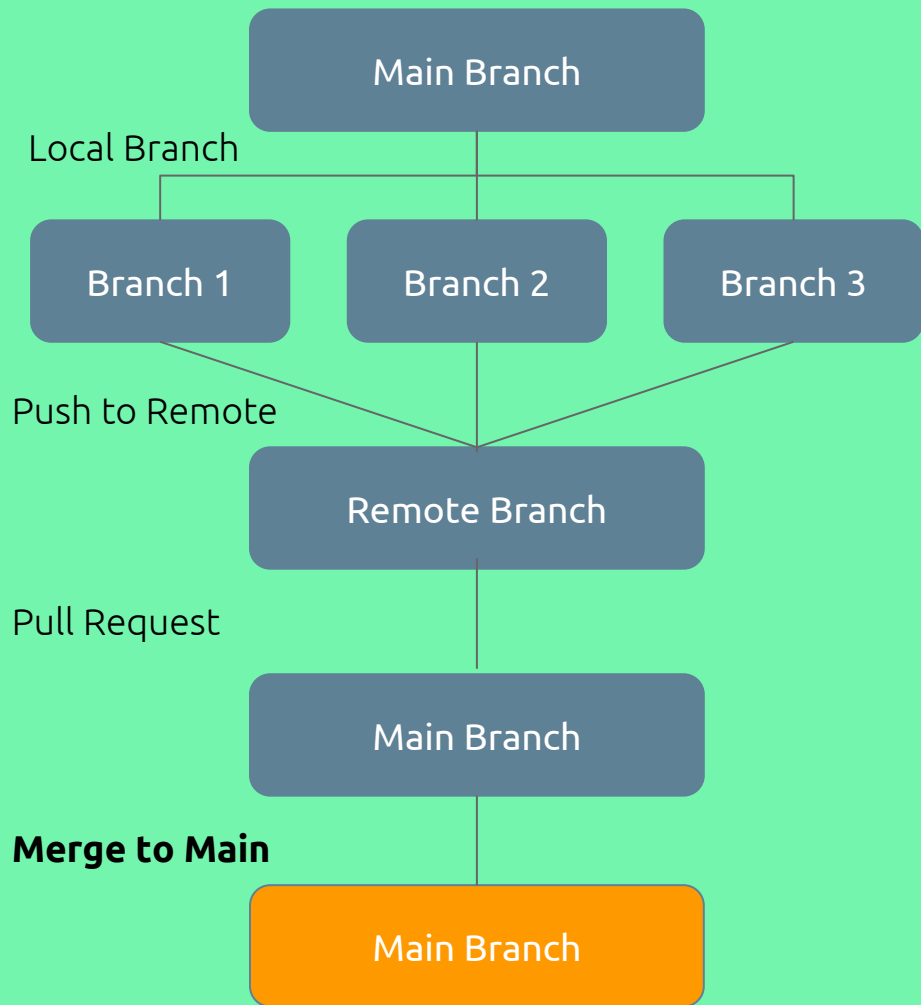
This gives the teammate responsible for the task a chance to fix any potential bugs or problems that could arise after merging with the main branch



4. Merge to Main

Once the reviewers approve the branch pushed to the main it is ready to then be merged with the main branch which will add the changes made from the local branch that was once copied to the main.

This process allows for multiple teammates to work on separate issues and merge them all in the end simultaneously



Branching to Feature vs Branching to Feature-Item

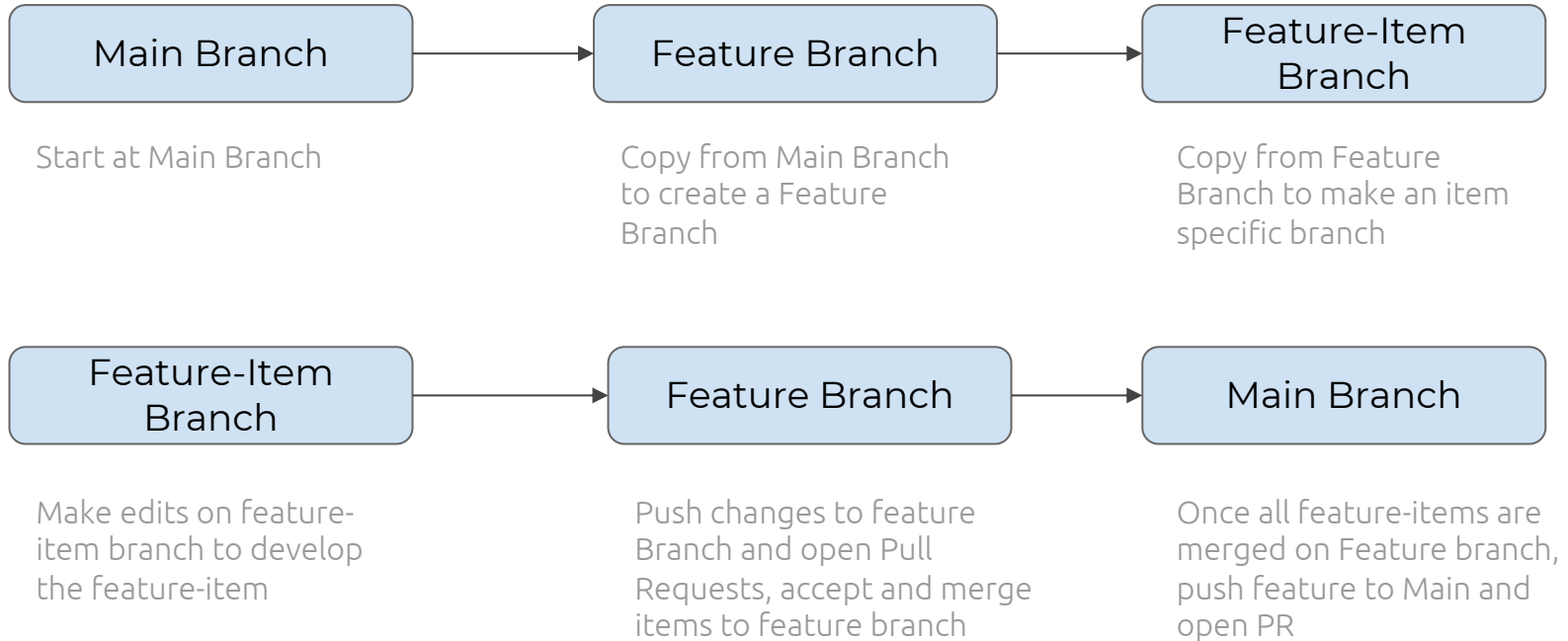
Branching to Feature

- Copy feature branch from Main branch
- Can have multiple people working on same feature
- Creates a branch that will be the subject of a new feature to implement

Branching to Feature-Item

- Copy feature-item branch from feature branch
- Typically one person works on each feature-item
- Creates a branch from the feature branch to address a specific item for the new feature

Feature-Item Branching Process





- **Project Management Tools**

What are they and why are they useful?

Project Management Tools

- Organizational method for developers and managers to coordinate edits, and progress on work in one place
- Useful to manage projects so they stay on schedule
- Creates a central place to keep track of all team member progress

Industry Application Examples



Jira

Bug, Issue Tracker, Test Case Management



Trello

Boards & Cards to prioritize and organize Team tasks



Airtable

Boards & Cards to prioritize and organize multiple teams or company wide



Pivotal Tracker

Tracker for backlog, project breakdown, team transparency



Slack

Communication Tool that allows for integration with other applications like git

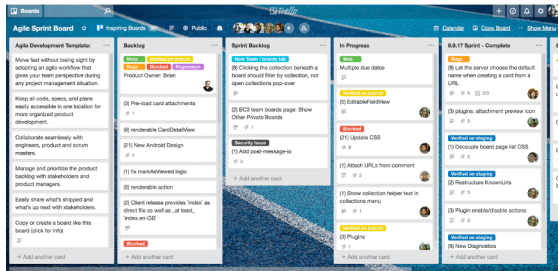


Teams

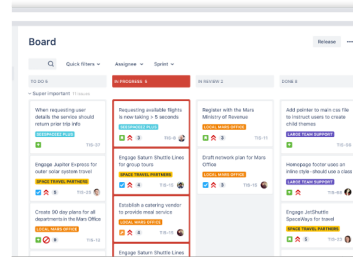
Microsoft communication tool that has conference call integration

Kanban Board

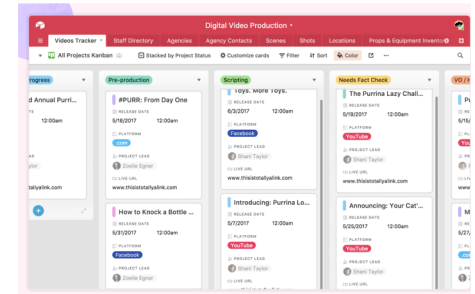
- Organizes team progress and transparency for assignments
 - Examples: Trello, Airtable, Jira
- Allow for teams to differentiate individual progress
- Team members can indicate their progress on a project with updating which assignments are in progress, yet to begin, or ready for review
- Very common application in the Industry World



Trello



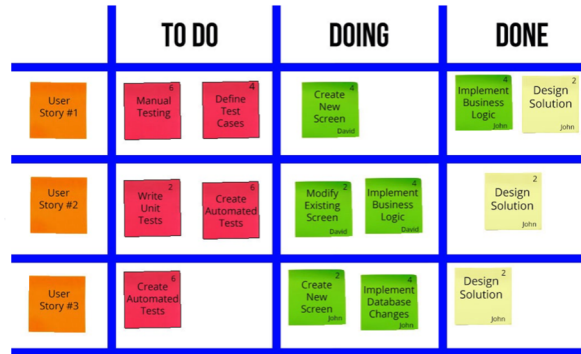
Jira



Airtable

Scrum Board

- Organize and manage a timeline of issues and tasks in order to achieve a desired goal
- Primarily focus on ensuring that project assignments and goals adhere to the timeline
- Plan sprints (typically 2-3 week long goals) a team wants to accomplish while Kanban boards focus on individual team member tasks





3. Using Github Project Boards

How github allows you to use these tools?

Github Project Management

- Github has an integrated Project Management Feature that utilizes Kanban boards to keep track of team members progress and assignments.
- Creates a transparent, organized, and collaborative atmosphere for team projects.
- Keeps track of and organizes branching, pull requests, reviews, and merges.

Github Project Management

The Github site has a tab to organize multiple projects for teams

The screenshot displays the Github interface for project management. At the top, a navigation bar includes links for Code, Issues (3), Pull requests, Actions, Projects (2), Wiki, Security, and Insights. The 'Projects 2' tab is highlighted with an orange box. Below the navigation bar is a search bar containing the text 'is:open'. To the right of the search bar is a green 'New project' button, which is circled in orange. Below the search bar, there are two project cards. The first card is titled 'CMSC388T' and is marked as 'Private'. It contains the text 'This will serve as a sample project board for class demo purposes.' and 'Updated 19 seconds ago'. The second card is titled 'Backlog' and is also marked as 'Private'. It contains the text 'This board is used for our product backlog' and 'Updated 5 days ago'. Both cards have a three-dot menu icon on the right side.

Create projects to organize & collaborate with team members

Collaborate with Github Project Manager

Customize the organization method of your project manager with the different templates that Github Project Manager has to offer. We recommend using the Automated Kanban with reviewers board.

Templates

✓ None

Start from scratch with a completely blank project board. You can add columns and configure automation settings yourself.

Basic kanban

Basic kanban-style board with columns for To do, In progress and Done.

Automated kanban

Kanban-style board with built-in triggers to automatically move issues and pull requests across To do, In progress and Done columns.

Automated kanban with reviews

Everything included in the Automated kanban template with additional triggers for pull request reviews.

Bug triage

Triage and prioritize bugs with columns for To

Collaborate with Github Project Manager

The screenshot displays the Github Project Manager interface for repository CMSC388T. The navigation bar includes links for Code, Issues (4), Pull requests, Actions, Projects (2), Wiki, Security, and Insights. The main area shows a Kanban board with four columns: 'To do' (2 items), 'In progress' (0 items), 'Review in progress' (0 items), and 'Reviewer approved' (0 items). A text input field is active in the 'To do' column, containing the text 'Create your first card!'. Below the input field are 'Add' and 'Cancel' buttons. Below the board, there are 'Automated as' labels and 'Manage' links for each column.

Create Cards in order to create tasks for team members

Collaborate with Github Project Manager

The screenshot displays the Github Project Manager interface for a repository named 'CMSC388T'. The navigation bar includes links for Code, Issues (4), Pull requests, Actions, Projects (2), Wiki, Security, and Insights. The main area shows a Kanban board with four columns: 'To do', 'In progress', 'Review in progress', and 'Reviewer approved'. The 'To do' column contains three cards. The top card is titled 'Enter a note' and has a context menu open over it. The menu options are: 'Create your first card!', 'Copy card link', 'Convert to issue' (highlighted in blue), 'Edit note', 'Archive', and 'Delete note'. An arrow points from the text 'Convert the new card to an issue' to the 'Convert to issue' option in the menu.

Convert the new card to an 'issue' - this indicates that the card needs to be addressed and can then be assigned to the team member in charge of addressing it

Collaborate with Github Project Manager

The screenshot displays the GitHub Project Manager interface for a repository named 'sagars729 / cmssc388T-winter21-ta'. The main view shows a project board with a 'To do' column containing three cards: 'Create your first card!', 'Add a title to our project', and 'Finish this lecture!'. A modal dialog titled 'Convert note to issue' is open, allowing a user to convert a selected card into an issue. The dialog has a 'Title' field with the text 'Create your first card!' and a 'Body' text area containing the text 'In the body of the card, you can describe in detail what needs to be done to address the 'issue''. A green 'Convert to issue' button is located at the bottom of the dialog. An arrow points from the text 'describe the issue and then convert to an issue' to the 'Convert to issue' button.

sagars729 / cmssc388T-winter21-ta Private

<> Code 1 Issues 4 Pull requests Actions

CMSC388T
Updated 18 minutes ago

3 To do + ...

- Create your first card! ...
Added by nkrishnan19
- Add a title to our project ...
Added by nkrishnan19
- Finish this lecture! ...
Added by nkrishnan19

0 In progress

0 Reviewer approved +

Watch 1 Star 0 Fork 0

+ Add cards Fullscreen Menu

Convert note to issue

Title

Create your first card!

Body

In the body of the card, you can describe in detail what needs to be done to address the 'issue'.

Convert to issue

describe the issue and then convert to an issue

Collaborate with Github Project Manager

The screenshot displays the GitHub Project Manager interface for a project named 'CMSC388T'. The interface is divided into columns: 'To do' (3 items), 'In progress' (0 items), and 'Review in progress' (0 items). The 'To do' column contains three cards, with the top one, 'Create your first card! #5', highlighted in an orange box. This card was opened by 'nkrishnan19'. The card details panel is open, showing the user's profile, a comment, and options to 'Add Assignees', 'Label the task', and 'Projects'. Arrows point from the text labels 'Add Assignees' and 'Label the task' to the corresponding options in the card details panel.

CMSC388T
Updated 19 minutes ago

Filter cards

3 To do + ...

- Create your first card! #5 opened by nkrishnan19
- Add a title to our project Added by nkrishnan19
- Finish this lecture! Added by nkrishnan19

0 In progress + ...

0 Review in progress + ...

Create your first card! #5
Opened in sagars729/cmsc388T-winter21-ta

nkrishnan19 commented 30 seconds ago

In the body of the card, you can describe in detail what needs to be done to address the 'issue'.

0

Assignees
No one—assign yourself

Labels
None yet

Projects
CMSC388T To do


Go to issue for full details

The 'issue' card has now been created and is ready to be assigned

Collaborate with Github Project Manager

Assignees are people responsible for the task

Create your first card! #5 ×
Opened in sagars729/cmhc388T-winter21-ta

 **nkrishnan19**
commented 30 seconds ago

In the body of the card, you can describe in detail what needs to be done to address the 'issue'.


0


Assignees ⚙️


No o **Assign up to 10 people to this issue**

Label

None

 **nkrishnan19** Nandhini Krishnan

Project  **sagars729** Sagar Saxena

 **Sanjay404** Sanjay S

[Go to issue for full details](#) ↗️

Labels are the type of issue that needs to be address

Labels ⚙️

None **Apply labels to this issue**

Project

bug ×
Something isn't working

Mile: **documentation**
Improvements or additions to documentation

No m: **duplicate**
This issue or pull request already exists

Link: **enhancement**
New feature or request

Succ: **good first issue**
Good for newcomers

None: **help wanted**
Extra attention is needed

invalid
This doesn't seem right

[Go to issue for full details](#) ↗️

Collaborate with Github Project Manager

Use the Kanan Board to keep track of progress among teammates

The screenshot displays the Github Project Manager interface for a repository named CMSC388T. The top navigation bar includes links for Code, Issues (4), Pull requests, Actions, Projects (2), Wiki, Security, and Insights. The main content area shows a Kanban board with four columns: To do, In progress, Review in progress, and Reviewer approved. The 'In progress' column contains a card titled 'Create your first card!' with a bug label and a plus icon. The 'To do' column has two cards: 'Add a title to our project' and 'Finish this lecture!'. The 'Review in progress' and 'Reviewer approved' columns are currently empty.

<> Code Issues 4 Pull requests Actions **Projects 2** Wiki Security Insights

CMSC388T
Updated 20 minutes ago

Filter cards + Add cards Fullscreen Menu

- 2 To do**
 - Add a title to our project
Added by nkrishnan19
 - Finish this lecture!
Added by nkrishnan19
- 1 In progress**
 - Create your first card!
#5 opened by nkrishnan19
bug
- 0 Review in progress**
- 0 Reviewer approved**

Collaborate with Github Project Manager

Link Pull Requests to Issue Cards in order to keep track of all assignments

The screenshot displays the GitHub Project Manager interface for a repository named 'CMSC388T'. The top navigation bar includes tabs for Code, Issues (5), Pull requests (1), Actions, Projects (2), Wiki, Security, and Insights. The main area shows a project board with columns for 'In progress' and 'Review in progress'. An issue card titled 'I made a website!' is highlighted with an orange box. Below the issue title, it shows '1 linked pull request' and a pull request card for 'Feature_Branch' (#6 opened by nkrishnan19). On the right side, a sidebar shows the project details for 'CMSC388T' and a section for 'Linked pull requests' with a list of pull requests, including 'Feature_Branch' and 'Merge test_branch with main'. A button 'Go to issue for full details' is visible at the bottom of the sidebar.

Click on the blue issue title to expand and see full details of the card

You can 'link' a Pull Request to an issue card. Select the PR that you opened and would like to link to the card

Linked pull requests

Link a pull request from this repository

Filter

✓ Feature_Branch
sagars729/cmcs388T-winter21-ta#6

Merge test_branch with main
sagars729/cmcs388T-winter21-ta#7

Go to issue for full details

Close issue

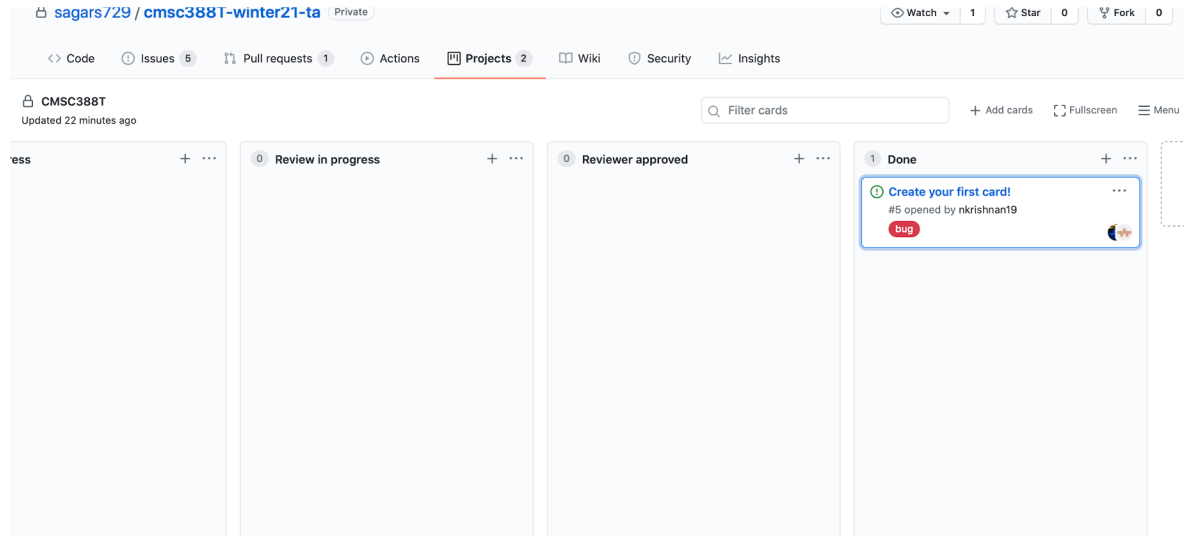
Collaborate with Github Project Manager

Once the Assigned Reviewer approves the PR, it can be updated as such on the Project Board

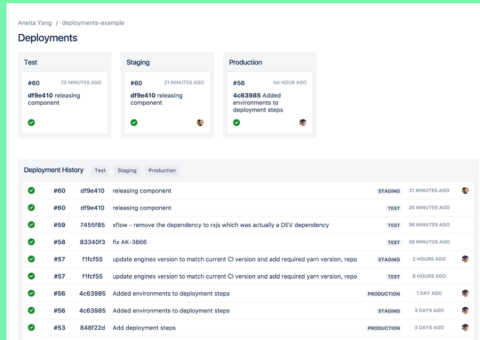
The screenshot shows a GitHub Project Board for the repository 'sagars/29 / cmsc388T-winter21-ta'. The board is organized into four columns: 'In progress', 'Review in progress', 'Reviewer approved', and 'Done'. The 'Reviewer approved' column contains one card titled 'Create your first card!' with a 'bug' label and a note that it was opened by 'nkrishnan19'. The board interface includes a search bar, 'Add cards', 'Fullscreen', and 'Menu' options. The repository name and update time are also visible at the top of the board area.

Collaborate with Github Project Manager

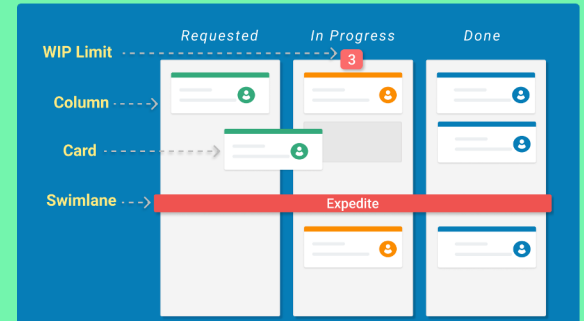
Use the Project to have transparency within group members about stages of assignments



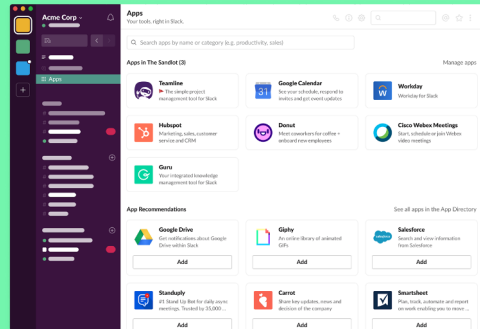
Clicker Quiz: Which of the following is an example of a Kanban Board?



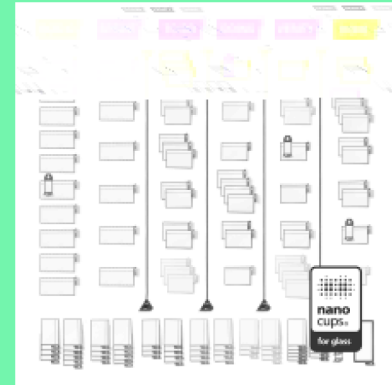
B.



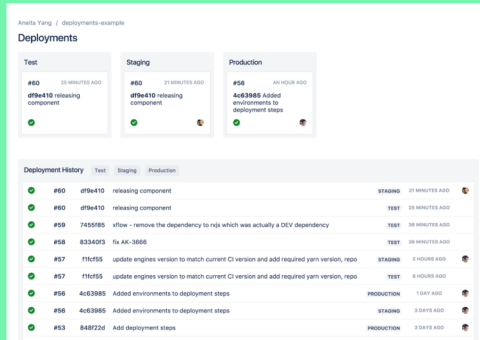
C.



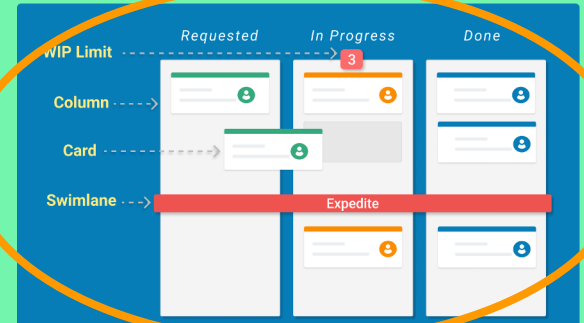
D.



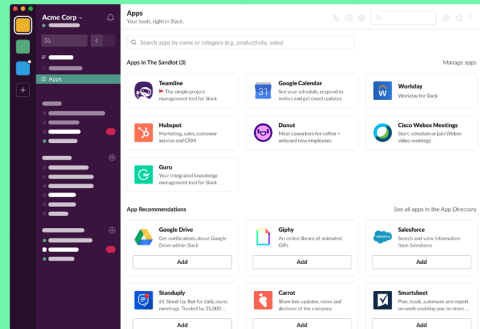
Clicker Quiz: Which of the following is an example of a Kanban Board?



B.



C.



D.



ReadME.md

- Description of the project and contains useful information for someone who visits the repository or project
 - What is the project purpose
 - How should it be used
 - Why is it useful
 - Who contributes to project

ReadME.md

header

numbered list

bullets

```
1 # readme
2
3 This repository has a few templates for README files and some notes about which type of information you could write on them.
4
5
6 ## Prepare the content
7
8 Readme files are made for developers (including you), but also could be used for the final users.
9 So while you are writing your readme files please consider a few things:
10
11 1. What is about?
12    - Describe the content of your project or repository
13    - Explain things the users would have a hard time understanding right away
14 2. What steps need to be taken?
15    - Do they need to install any software?
16    - Is there any hardware requirements or dependencies?
17    - After the installation, how they compile or run the code?
18 3. Execution examples
19    - You could provide examples of execution with code and screenshots
20
21 other things you could add:
22
23 - Table of content
24 - Test cases
25 - Know bugs
26 - Version
27 - Contributors
28 - License
29 - References
30
31 ## Templates
32
33 - _cheatsheet.md
34   - a simple markdown cheatsheet (in construction)
35 - assignment.md
36   - an example of an university assignment
```


ReadME.md

```
91
92 ### Sub-Lists
93
94 ...
95 1. You could have
96   1. ordered sub-lists
97     1. in different levels
98 2. Same thing
99   - for unordered
100   - sub-lists
101
102 - Doesn't matter if the main list is
103   1. ordered or unordered
104   2. you could mix them
105     - in any level
106 - You could also align some text with
107   - other items
108     without list-style
109 ...
110
111 1. You could have
112   1. ordered sub-lists
113     1. in different levels
114 2. Same thing
115   - for unordered
116     - sub-lists
117
118 - Doesn't matter if the main list is
119   1. ordered or unordered
120   2. you could mix them
121     - in any level
122 - You could also align some text with
123   - other items
124     without list-style
125
126
```

ordered list
and sub lists

embedded
Links

```
172 ## 5. Links
173
174 URLs and URLs in angle brackets will automatically get turned into links
175 as in <www.mozilla.org/en-US/firefox/>
176
177 ...
178 URLs and URLs in angle brackets will automatically get turned into links
179 as in <www.mozilla.org/en-US/firefox/>
180 ...
181
182
183 You could also paste the link in a new line without angle brackets:
184
185 ...
186 https://www.mozilla.org/en-US/firefox/
187
188 ...
189
190 https://www.mozilla.org/en-US/firefox/
191
192 Or you could use inline-style link:
193
194 ...
195 [Firefox](https://www.mozilla.org/en-US/firefox/)
196 ...
197
198 \[Firefox\]\(https://www.mozilla.org/en-US/firefox/\)
199
```

ReadME.md

Embed Images & Videos

```
199
200
201 ## 6. Images
202
203 ```
204 ![alt text](https://github.com/inessadl/readme/blob/master/img/ff_logo2013.png)
205
206 ```
207
208 ![alt text](https://github.com/inessadl/readme/blob/master/img/ff_logo2013.png)
209
210
211
212 ## 7. Youtube videos
213
214 They can't be added directly but you can add an image with a link to the video like this:
215
216 ![image alt text](https://github.com/inessadl/readme/blob/master/img/ue4.jpg)](https://www.youtube.com/watch?v=XJ0qXK9v3ok)
217
```

ReadME.md

Code block in README.md

```
1 # TestRepo
2
3 **Example Code Block**
4 ```java
5 System.out.println("Hello World");
6 ```
7
8 **Example Code Block**
9 ```python
10 print("Hello World")
11 ```
```



Code View in README.md

TestRepo

Example Code Block

```
System.out.println("Hello World");
```

Example Code Block

```
print("Hello World")
```