

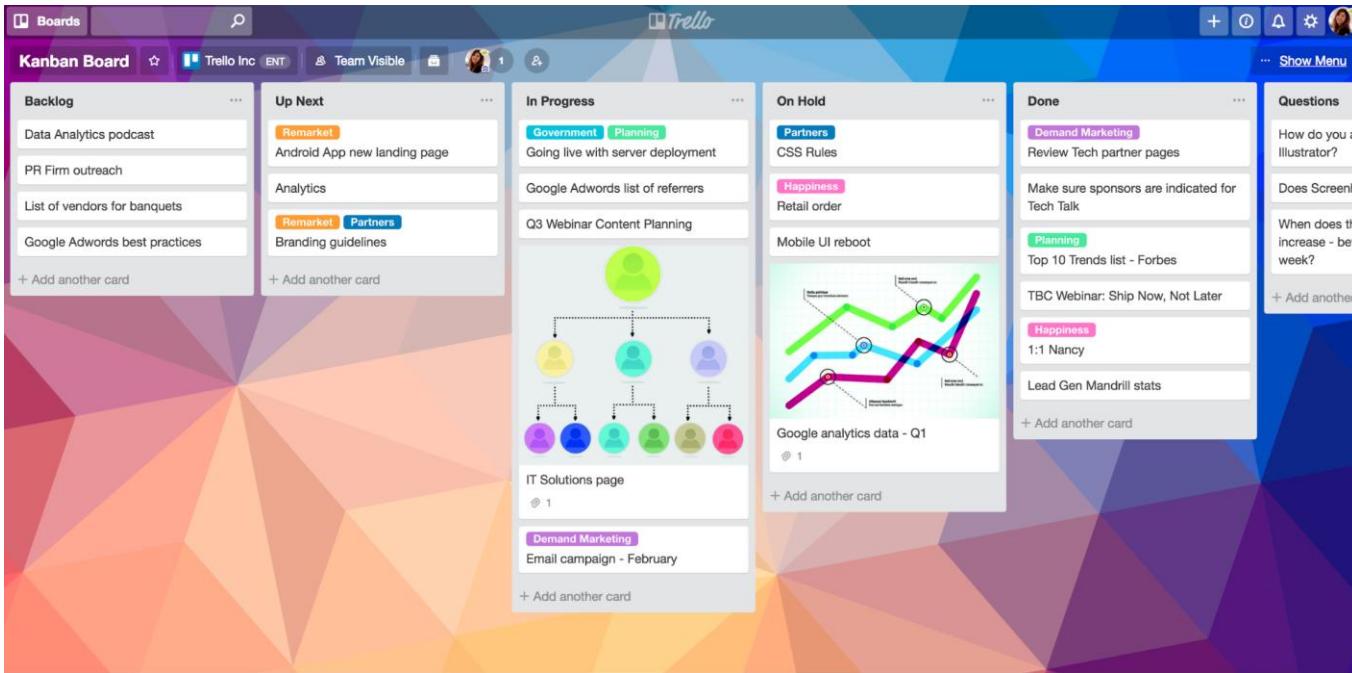
# CS3213: Foundations of Software Engineering

## Agile Frameworks: Kanban

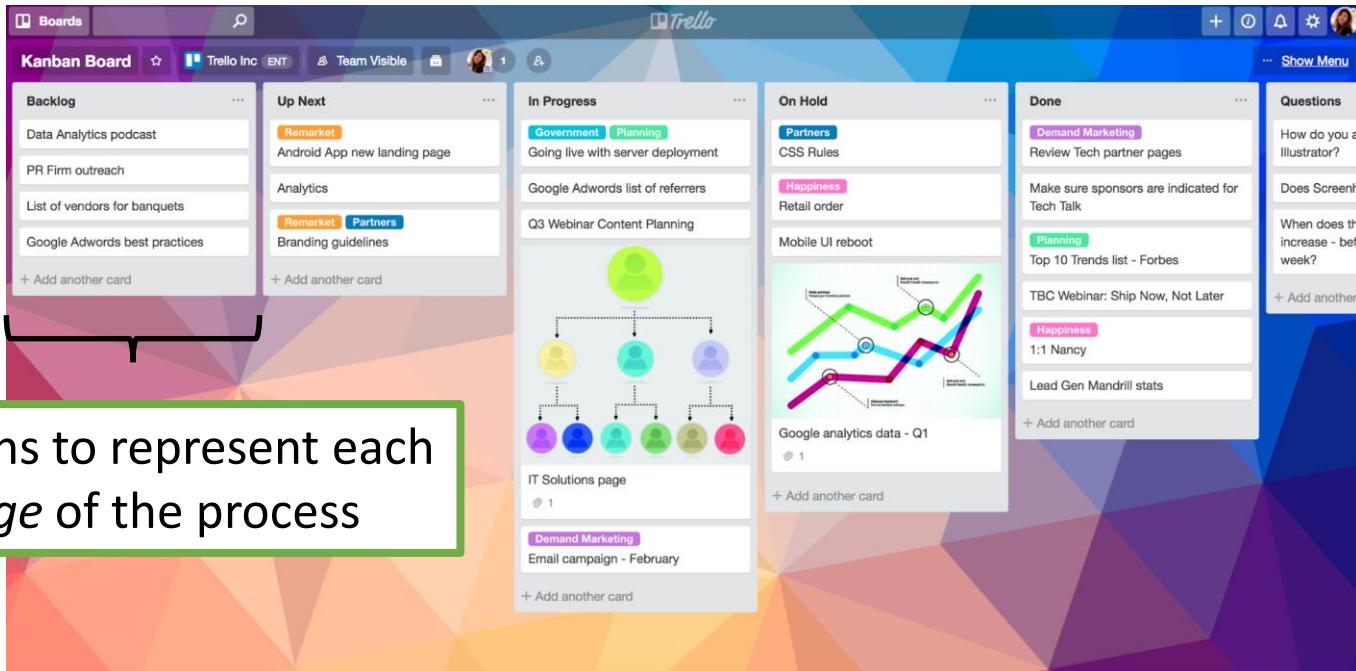
## Side-project



# Kanban Board



# Kanban Board



# Kanban Board

The image shows a Trello Kanban board interface. At the top, there are tabs for 'Boards', a search bar, and account information. Below the tabs, the board is organized into six columns: 'Backlog', 'Up Next', 'In Progress', 'On Hold', 'Done', and 'Questions'. Each column contains several cards, each with a title and some descriptive text or a small chart. A green callout box with the text 'Cards represent work items' points to the 'On Hold' column. The background of the board features a colorful, geometric pattern.

Backlog

- Data Analytics podcast
- PR Firm outreach
- List of vendors for banquets
- Google Adwords best practices
- + Add another card

Up Next

- Remarket** Android App new landing page
- Analytics
- Remarket** Partners Branding guidelines
- + Add another card

In Progress

- Government** Planning Going live with server deployment
- Google Adwords list of referrers
- Q3 Webinar Content Planning
  - IT Solutions page
  - Demand Marketing Email campaign - February
- + Add another card

On Hold

- Partners** CSS Rules
- Happiness** Retail order
- Mobile UI reboot
  - Google analytics data - Q1
- + Add another card

Done

- Tech Talk
  - Planning Top 10 Trends list - Forbes
  - TBC Webinar: Ship Now, Not Later
  - Happiness** 1:1 Nancy
  - Lead Gen Mandrill stats
- + Add another card

Questions

- When does the increase - befc week?
- + Add another card

Cards represent work items

# Kanban Board

cockroach / Projects / SQL Queries

SQL Queries [Increased items preview] Feedback

Kanban Board Triage L3 Secondary L3 Secondary w/o Sert Active 25.1 Release 25.2 Release Bugs to Fix Backlog Test Failures Release Blockers

Filter by keyword or field

Active 31

- cockroach #132629: optimizer: v24.2.3: interface is nil, not tree.TypeExpr  
branch-release-24.3 C-bug C-sentry T-sql-queries X-blathers-traged
- cockroach #129326: opt: v24.1.2: no volatility for cast with piped  
branch-release-24.3 C-bug C-sentry P-3 T-sql-queries X-blathers-traged
- cockroach #128320: optimizer: v24.1.5: unknown resolvable type reference  
branch-release-24.3 C-bug C-sentry T-sql-queries
- cockroach #128335: optimizer: v23.2.4: no overloads found for function x  
branch-release-23.2 C-bug C-sentry T-sql-queries X-blathers-traged
- cockroach #128044: optimizer: v23.2.9: expected 'OID' found 'tree.Dint' in pg\_sequence.next\_value  
branch-release-23.2 C-bug C-sentry T-sql-queries X-blathers-traged
- cockroach #136078: sql/test: internal error: output cols mismatch  
B-runtime assertions-enabled branch-release-23.2 C-test-failure C-bot T-sql-queries

25.1 Release 10

- cockroach #127460: sqloptim: add support for PLpgSQL to query generator  
C-enhancement T-sql-queries
- cockroach #99377: sql: partial stats created empty stats entry when previous histogram contains max value  
A-sql-table-state C-bug C-sentry P-3 T-sql-queries
- cockroach #121188: sql: v23.1.10: GetLeafInputState() called on leaf tm in routines  
C-bug C-sentry T-sql-queries
- cockroach #112856: No database connection in case of partial unique index  
C-bug C-community T-sql-queries
- cockroach #128912: roachtest: add randomized test comparing generic query plans with custom plans  
A-generic-query-plans C-testing C-enhancement O-sql T-sql-queries
- cockroach #129942: kvstreamer: impact on go scheduling latency  
C-enhancement O-support P-3 T-sql-queries
- cockroach #114206: opt: add rule to eliminate trivial GroupBy  
C-enhancement I-quic-win good-first-issue O-support P-3 T-sql-queries
- cockroach #120424: sql: code for encoding primary index entries is duplicated in multiple locations  
A-sql-trigger C-enhancement C-cleanup T-sql-queries
- cockroach #121742: opt: produce tight constraints for NOT IN expressions  
C-enhancement I-quic-win O-support P-3 T-sql-queries
- cockroach #120055: opt: improve row count estimates for inverted filters  
branch-master branch-release-24.2 C-bug T-sql-queries

25.2 Release 53

- cockroach #106368: kvstreamer: consider using the streamer for the TableReader  
C-performance C-support P-3 sync-me T-sql-queries
- cockroach #127828: sqlopt: recalculate average custom plan cost on stats change  
A-sql-trigger C-enhancement T-sql-queries
- cockroach #128365: sql: add support for enabling and disabling triggers  
A-sql-trigger C-enhancement T-sql-queries
- cockroach #135670: sql: indicate in EXPLAIN ANALYZE output when a post-query didn't run  
A-sql-trigger A-sql-trigger C-enhancement E-quick-win T-sql-queries
- cockroach #135658: sql: support triggers on views  
A-sql-trigger C-enhancement T-sql-queries
- cockroach #135857: sql: implement triggers that fire for TRUNCATE events  
A-sql-trigger C-enhancement docs-known-limitation T-sql-queries
- cockroach #132968: opt: reset base and generic memo costs if either is stale  
branch-master branch-release-24.2 C-bug T-sql-queries
- cockroach #133787: sql: consider sometimes allowing BEFORE  
branch-release-24.2 C-bug T-sql-queries

Bugs to Fix 181

- cockroach #92164: kvstreamer: consider using the streamer for the TableReader  
C-performance C-support P-3 sync-me T-sql-queries
- cockroach #104099: sql: v23.1.2: nil pointer in opt. (\*Metadata).TableAnnotation  
A-sql-plugin C-enhancement T-sql-queries
- cockroach #99882: crash: internal error: the first bucket should have NumRange=0  
A-sql-plugin A-sql-table-state C-bug C-community T-sql-queries
- cockroach #79549: sql: indicate wrong interval type not using same comparison as sql.protectedForAggregation or insertion  
A-sql-plugin A-sql-system C-bug C-community T-sql-queries
- cockroach #58164: opt: fix index/lookup join costing in the presence of soft limits  
C-bug O-support P-3 T-sql-queries
- cockroach #4461: opt: limit hint row estimate can be wildly wrong if values are not evenly distributed  
A-sql-optimize C-bug O-support P-3 T-sql-queries
- cockroach #107141: import: investigate why TestProtectedTimestampDuringImportInto doesn't work with test tenant  
A-import T-sql-queries
- cockroach #102449: Add Foreign Key Check Tests to multi\_region\_remote\_access\_error test  
C-bug T-sql-queries
- cockroach #135656: opt: support for UPDATE triggers with column list  
A-sql-trigger C-enhancement docs-known-limitation T-sql-queries
- cockroach #99274: import: avoid over-splitting schema objects  
C-enhancement T-sql-queries
- cockroach #93771: roachtest: implement a pg\_isolation\_regress runner roachtest  
C-enhancement T-sql-queries
- cockroach #34518:

Backlog 890

- cockroach #102136: plogit: pretty-print PLpgSQL statements  
A-sql-plugin C-enhancement T-sql-queries
- cockroach #125423: import: support import to elastic CPU admission  
A-import A-sql-execution C-enhancement T-sql-queries
- cockroach #66619: sql: allow DEFAULT values to depend on other columns  
A-sql-plugin A-sql-system C-bug C-community T-sql-queries
- cockroach #4747: sql: support attribute notation for single-param functions (x.F) equivalent to fix  
A-sql-plugin A-tools-active-record C-investigation T-sql-queries
- cockroach #63770: sql: support SCRUB on temp tables  
C-enhancement I-quick-win C-community T-sql-queries
- cockroach #84577: opt: EXPLAIN and EXPLAIN ANALYZE can show different required orderings in plan  
A-sql-explain C-bug T-sql-queries
- cockroach #86002: Support Parallel "Batch" UPDATE / DELETE jobs  
C-enhancement T-sql-queries
- cockroach #91269: Enhance index recommendations to accommodate the cost of writes  
A-sql-optimize C-enhancement T-sql-queries
- cockroach #125559: bundle: improve visibility into short-circuited execution  
A-sql-debug-bundle C-branch-release-25.1 C-cleanup I-quick-win T-sql-queries
- cockroach #130663: sql: grow stacks for better performance (~30% cpu or more)

Cold Storage 35

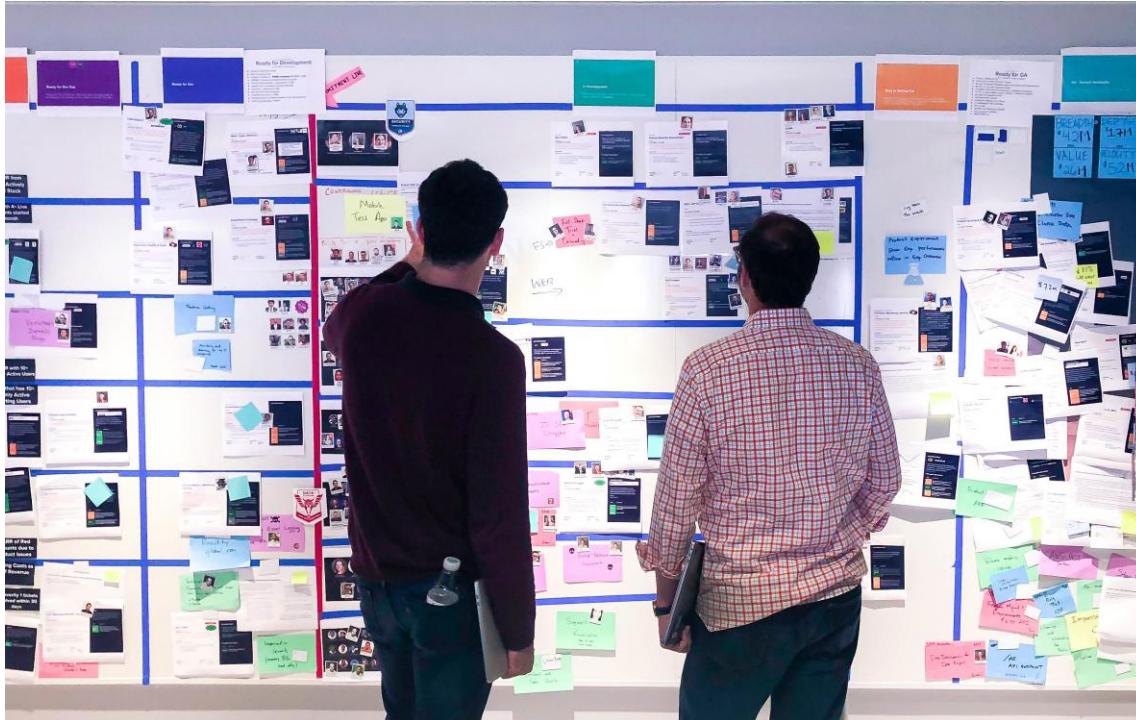
- cockroach #115268: EXPLAIN(distsql) support for IMPORT queries  
C-enhancement T-sql-queries
- cockroach #66619: sql: allow DEFAULT values to depend on other columns  
A-sql-plugin A-sql-system C-bug C-community T-sql-queries
- cockroach #4747: sql: support attribute notation for single-param functions (x.F) equivalent to fix  
A-sql-plugin A-tools-active-record C-investigation T-sql-queries
- cockroach #90454: sql: do not allow duplicate index storage parameters  
C-bug I-quick-win T-sql-foundations T-sql-queries
- cockroach #125115: sqloptim: internal error: inconsistent Case return types from RECORD UDFs called from CASE  
A-sql-route branch-release-23.2 branch-release-24.3 C-test-failure C-bot O-red P-3 T-sql-queries

Done 41

- cockroach #115268: EXPLAIN(distsql) support for IMPORT queries  
C-enhancement T-sql-queries
- cockroach #105867: sql: make memsize more efficient (~1.5% cpu)  
A-architecture C-performance O-perficiency P-1 T-sql-foundations
- cockroach #90454: sql: do not allow duplicate index storage parameters  
C-bug I-quick-win T-sql-foundations T-sql-queries
- cockroach #125115: sqloptim: internal error: inconsistent Case return types from RECORD UDFs called from CASE  
A-sql-route branch-release-23.2 branch-release-24.3 C-test-failure C-bot O-red P-3 T-sql-queries
- cockroach #125559: bundle: improve visibility into short-circuited execution  
A-sql-debug-bundle C-branch-release-25.1 C-cleanup I-quick-win T-sql-queries
- cockroach #130663: sql: grow stacks for better performance (~30% cpu or more)

<https://github.com/orgs/cockroachdb/projects/45>

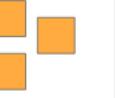
# Physical Kanban Board



<https://www.atlassian.com/agile/kanban/boards>

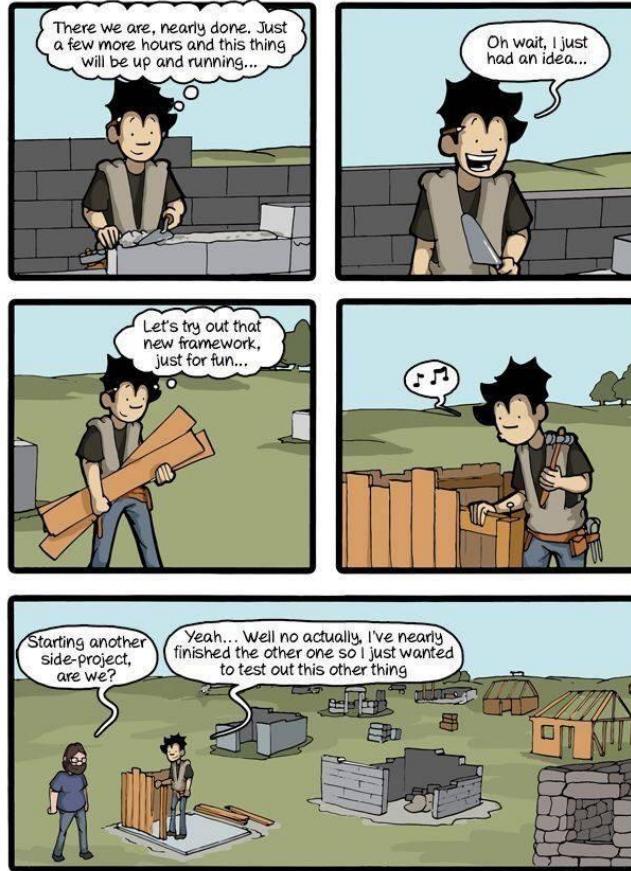
# Flow

- **Flow:** movement of potential value through a system
- Kanban optimizes *flow*
- Enforces a *work in progress (WIP) limit*

Backlog	Creating (WIP: 3)	Review (WIP: 2)	Publishing (WIP: 1)	Done
				



# Side-project



# Definition of Workflow (DoW)

- ***Definition of Workflow (DoW)***: explicit shared understanding of flow, which requires a definition of various concepts
- One or more *defined states* (*visually represented as stages*) that the work items flow through from started to finished
  - Including policy how work items can flow through each state
- Units of value, which are referred to as *work items (or items)*
- When work items are *started* and *finished* within the workflow
- A definition of how WIP will be controlled from started to finished

# Kanban and Scrum

- In Scrum, development is done in Sprints, while in Kanban, there is a constant flow
- Scrum is more prescriptive and provides more structure (e.g., in terms of artifacts, roles, or timeboxing)
- Kanban also works well for small teams (>0 persons)

# Summary and Key Points

- Visual system with columns (“state”) and cards (“work item”)
- Key concept of flow: work items “flow” through the different states
- Definition of Workflow defines the flow of the system as well as a work in progress limit (WIP limit)

# Kanban: Recommended Talk



Agile Project Management with Kanban | Eric Brechner | Talks at Google

# Kanban

The screenshot shows the homepage of Kanban Guides. At the top, there's a navigation bar with the 'KANBAN GUIDES' logo and a language dropdown set to 'English'. The main title 'Kanban Guides' is centered above a descriptive paragraph. Below the paragraph are two large cards, each representing a different guide.

**The Kanban Guide**

Choose [The Kanban Guide](#) if you're new to Kanban or need a stable, minimal reference. It's ideal for Kanban system members who want to start simple and build understanding.

[Read online](#) [View Translations](#) [View History](#)

**At a Glance**

Purpose:	Minimal, official reference
Ethos:	Focused, stable, canonical
Audience:	Kanban system members wanting a clear baseline
Use Case:	What is Kanban at its core?
Content:	Clear, lightweight, and essential
Update Model:	Periodic, curated

**Open Guide to Kanban**

Choose the [Open Guide to Kanban](#) if you're working across approaches or want more context and flexibility. It's well-suited to those with Lean, Agile, Scrum, or Product Management experience who want to adapt Kanban to their environment.

[Read online](#) [View Translations](#) [View History](#)

**At a Glance**

Purpose:	Community-expanded handbook
Ethos:	Inclusive, evolving, collaborative
Audience:	Teams blending Kanban with other approaches
Use Case:	How do we apply Kanban in our context?
Content:	Rich with examples and extensions
Update Model:	Community-driven, iterative