# PROJECT MANAGEMENT AND RISK TRACKING

A Primer for Capstone 2022

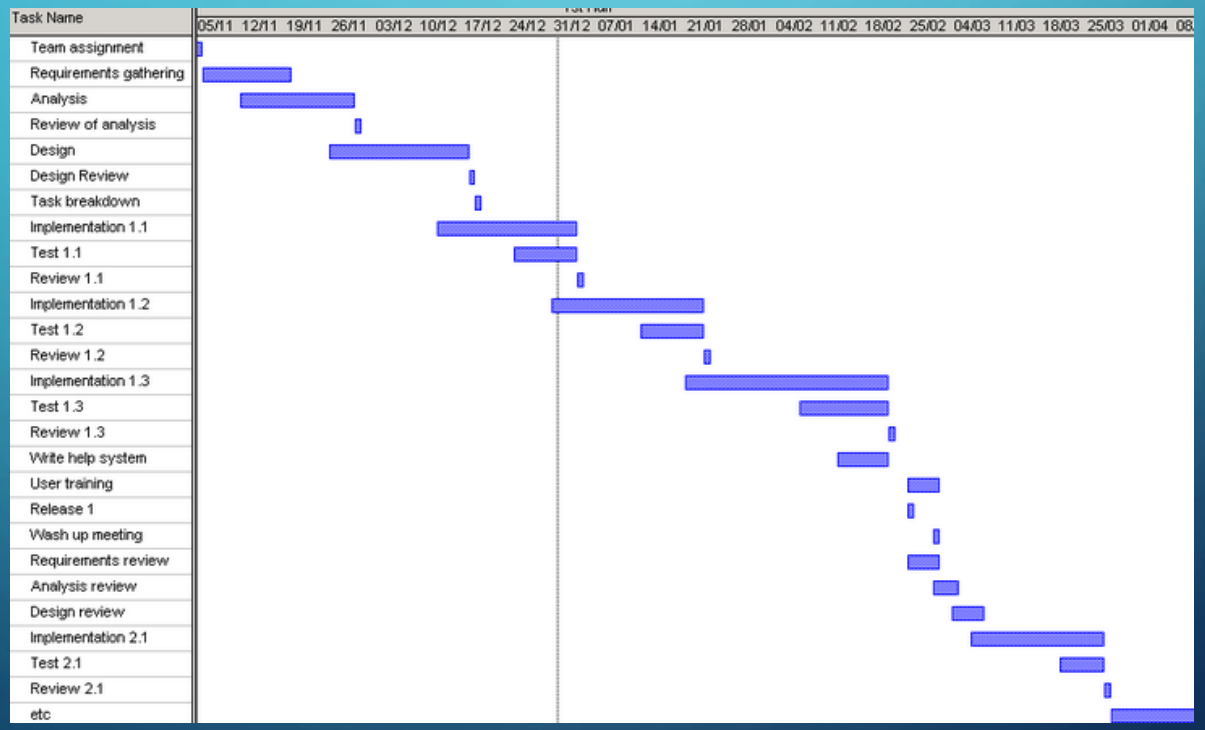
Mike D. Smith

# ALL CAPSTONE TEAMS MUST:

- Choose a project management tool to maintain project status
- Identify and track risks to their Anticipated Best Outcome

# TRADITIONAL METHODS

- Traditional waterfall (Gantt chart) planning
  - Customer needs and priorities might change
  - Estimating distant tasks is difficult
- Typically not effective for Capstone



# AGILE DEVELOPMENT

- Iterative and incremental development methodology
- Organize work into short duration “sprints”
  - Typically 2 weeks
- Team commits to specific work for that period
- Tasks are well defined:
  - Specific work to be completed
  - Acceptance Criteria – When a task is “done”
  - Size of task (points or hours)
- Members focus on a single task
- Deliver something of value to the customer each sprint
  - Allows for feedback and new directions

# AGILE VS WATERFALL, ADVANTAGES

## Agile

- Flexible
- Easier to estimate
- Regular customer feedback
- Quality can be included in each iteration

## Waterfall

- Project scope is fixed
- Larger teams possible
- Fewer meetings
- Known timeline and deliverable

# STEP 1: FUTURE TASKS (BACKLOG)

The To-Do List

- A large group of ideas that together capture all of the features the customer wants
- Prioritized
- Not necessarily well defined
- Can be changed as needed:
  - Capture ideas for new work as you think of it
  - Remove work that is no longer necessary

# STEP2: SPRINT PLANNING (GROOMING)

## Preparing To-Do Items That Will Be Started Soon

- Further define ideas in the backlog
- Agree on relative size of the task
- Break up extra large tasks into manageable pieces
- Prioritize tasks
- Only go far enough to fill 1.5-2 sprints

# STEP 3: THE SPRINT ITSELF

## Doing the Work

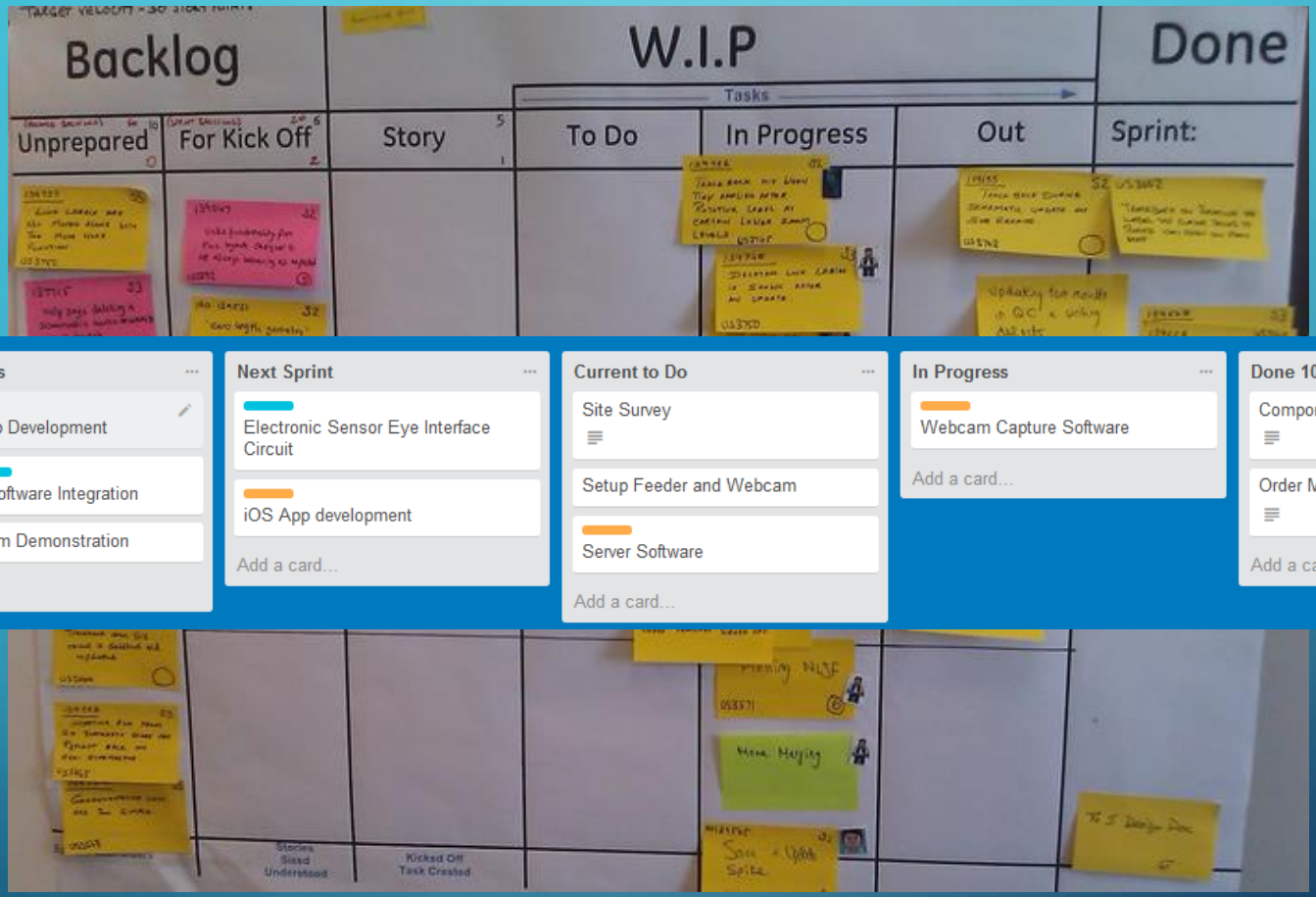
- The team commits to a set of tasks from the backlog
- You only get credit for tasks you complete
- Tasks move from To Do → Doing → Done

# STEP 4: DEMO

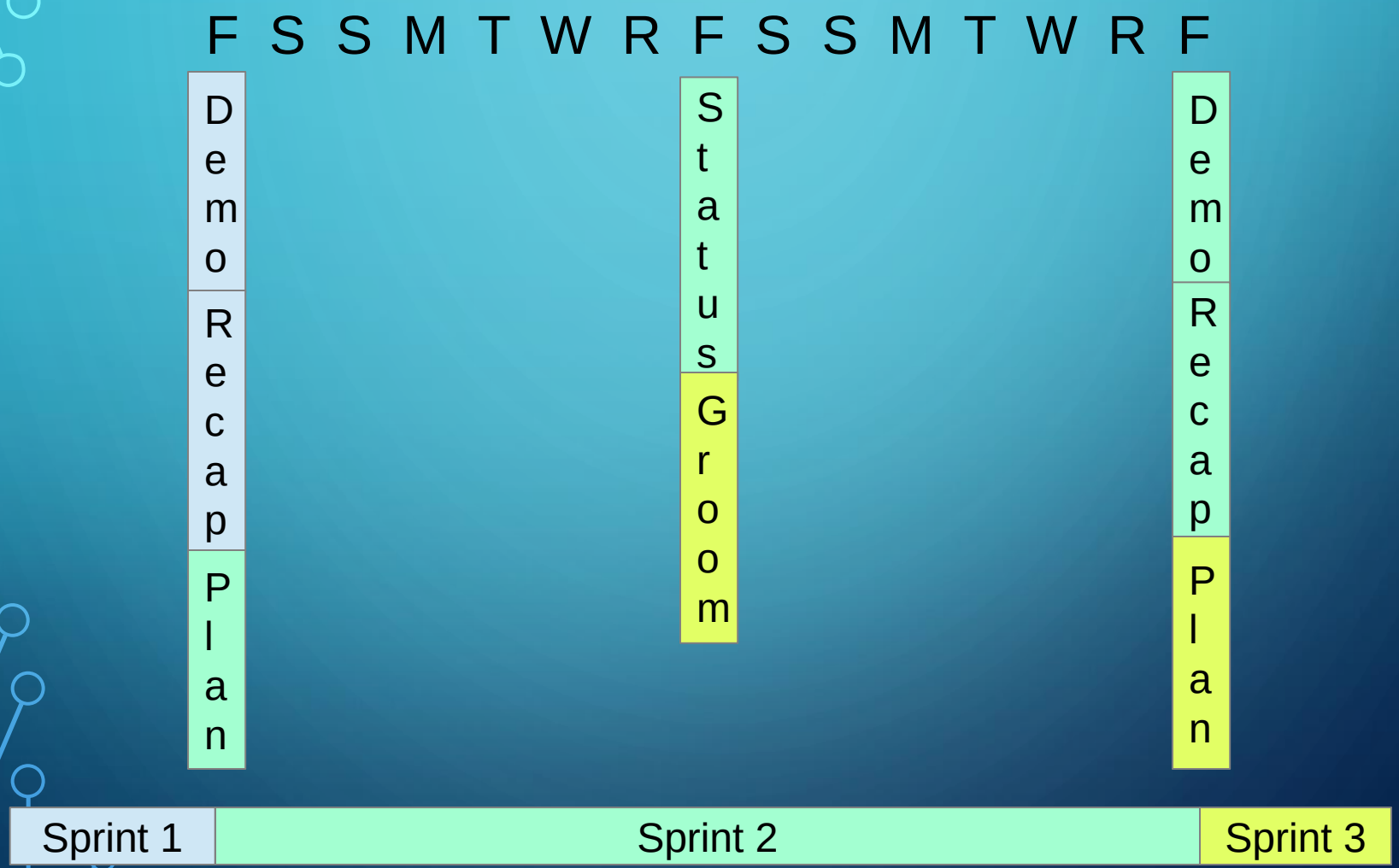
## Deliver Something of Value from Each Sprint

- Show what the team has done in the sprint
- Get feedback and forward direction from the customer

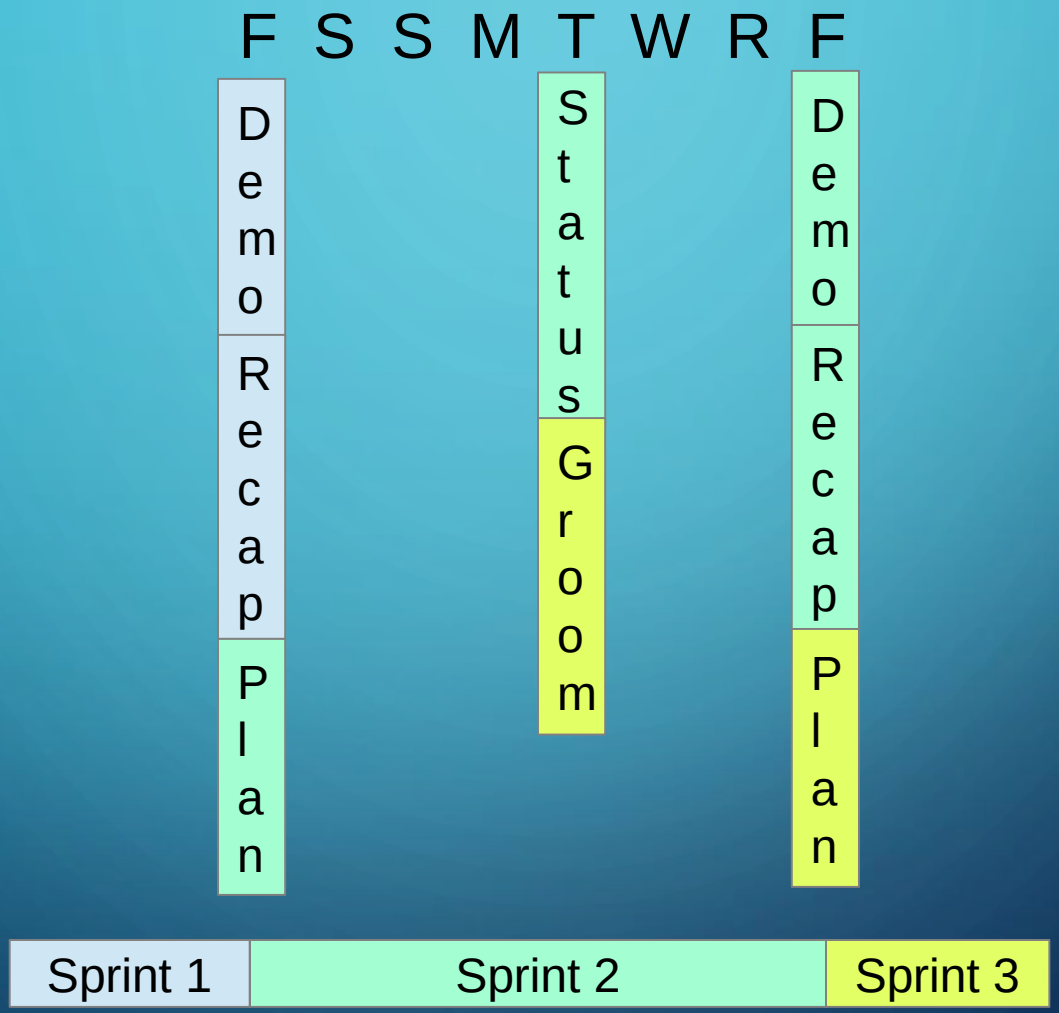
# IMPLEMENTATIONS



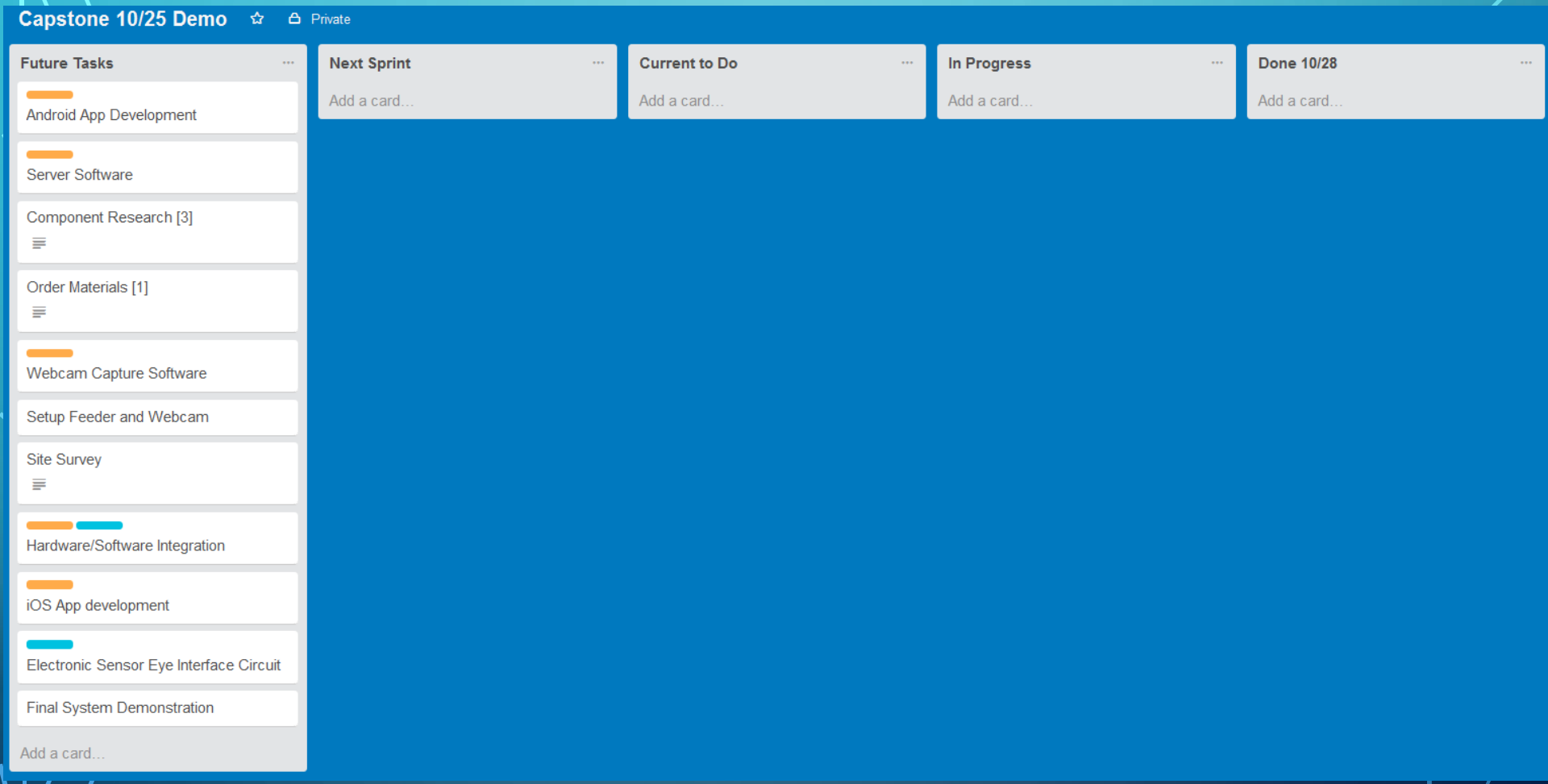
# CAPSTONE TWO WEEK TIMELINE



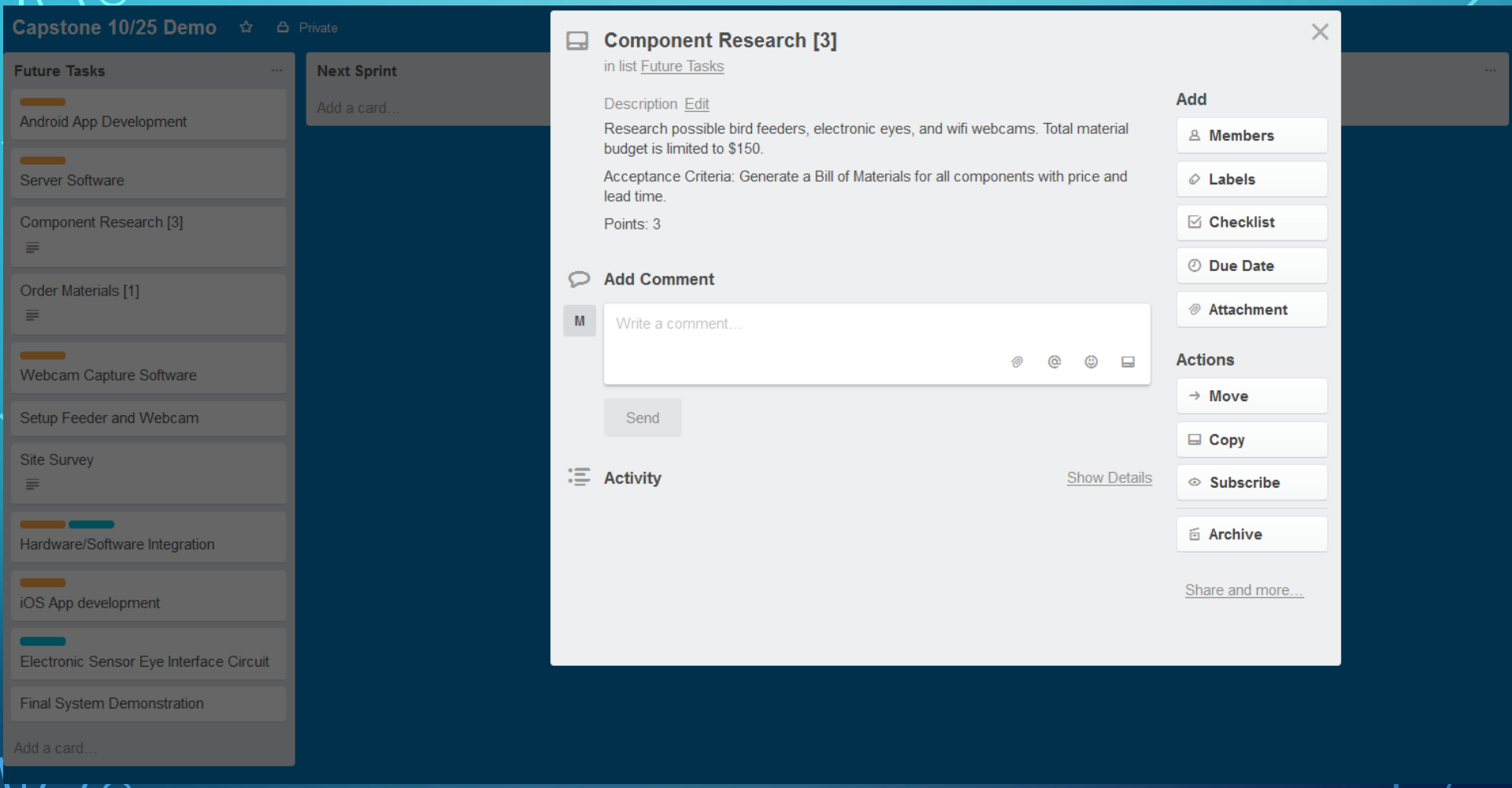
# CAPSTONE ONE WEEK TIMELINE



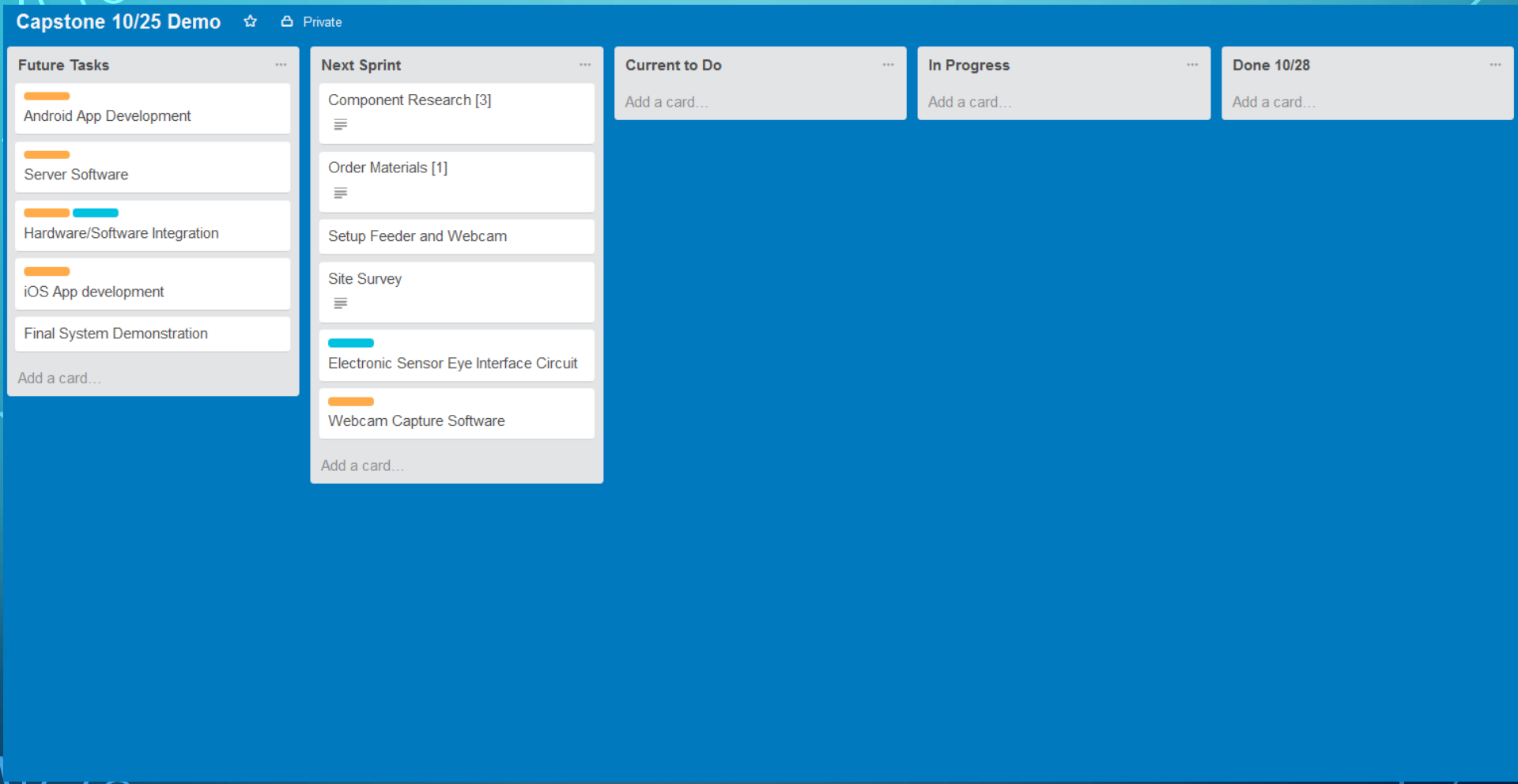
# START OF PROJECT



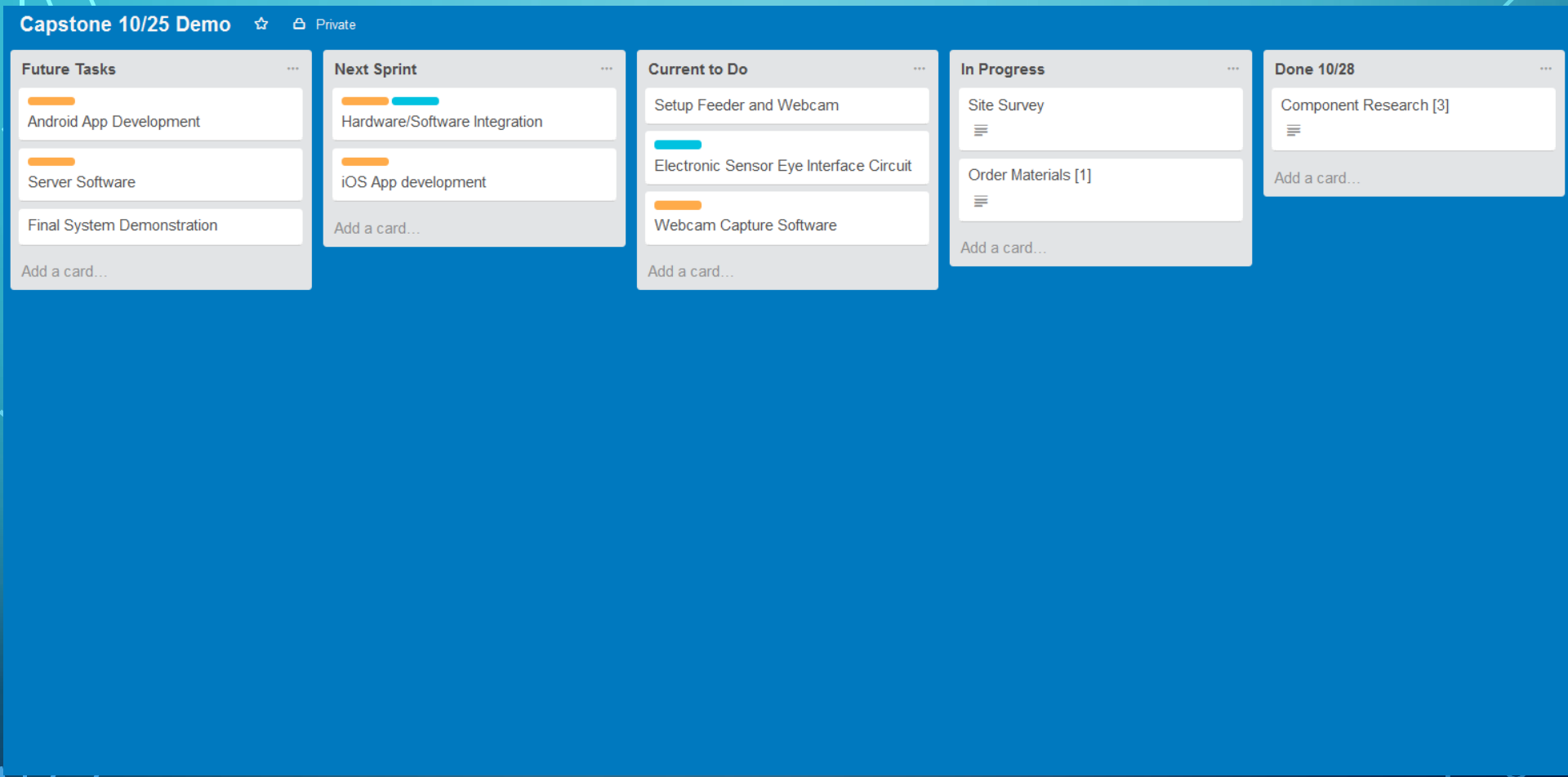
# DETAILED TASK EXAMPLE



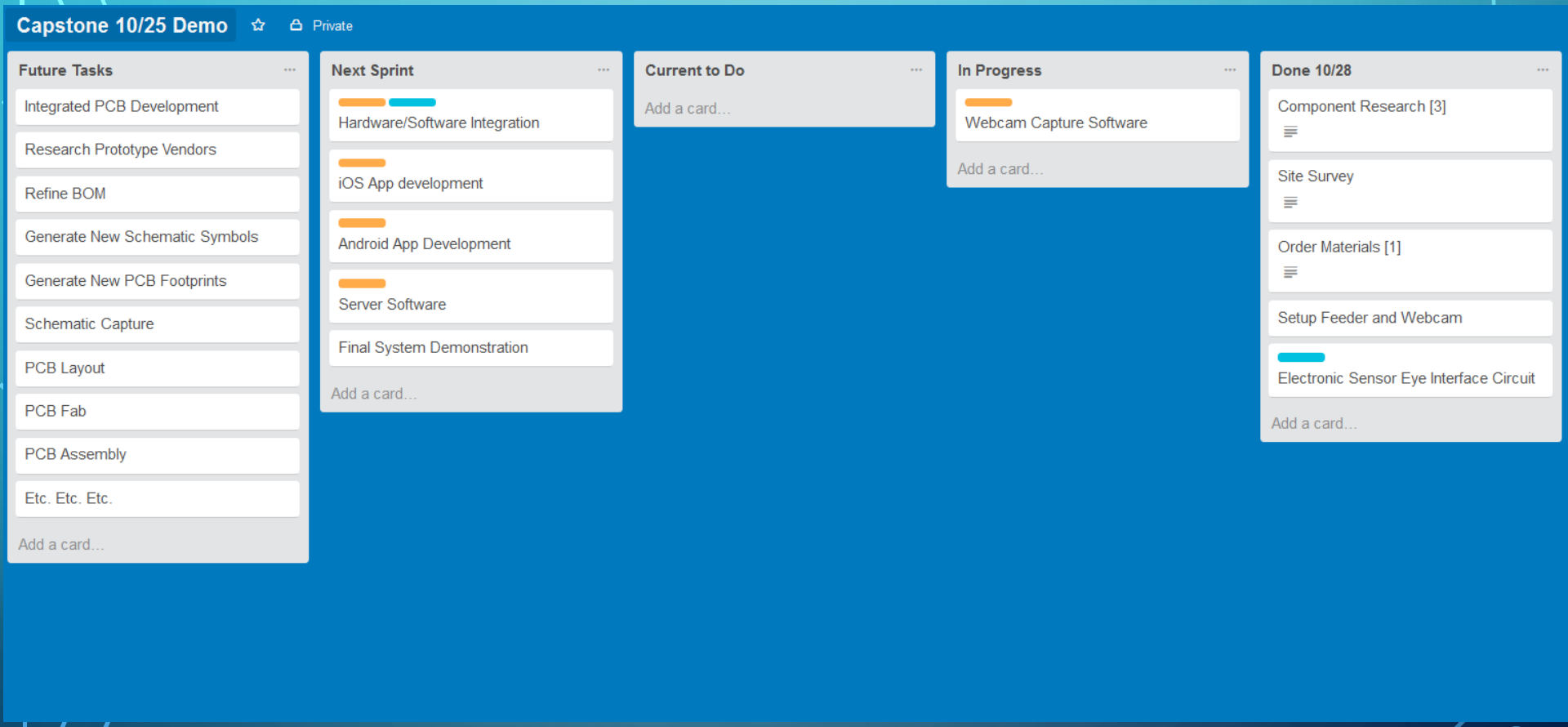
# READY FOR SPRINT 1



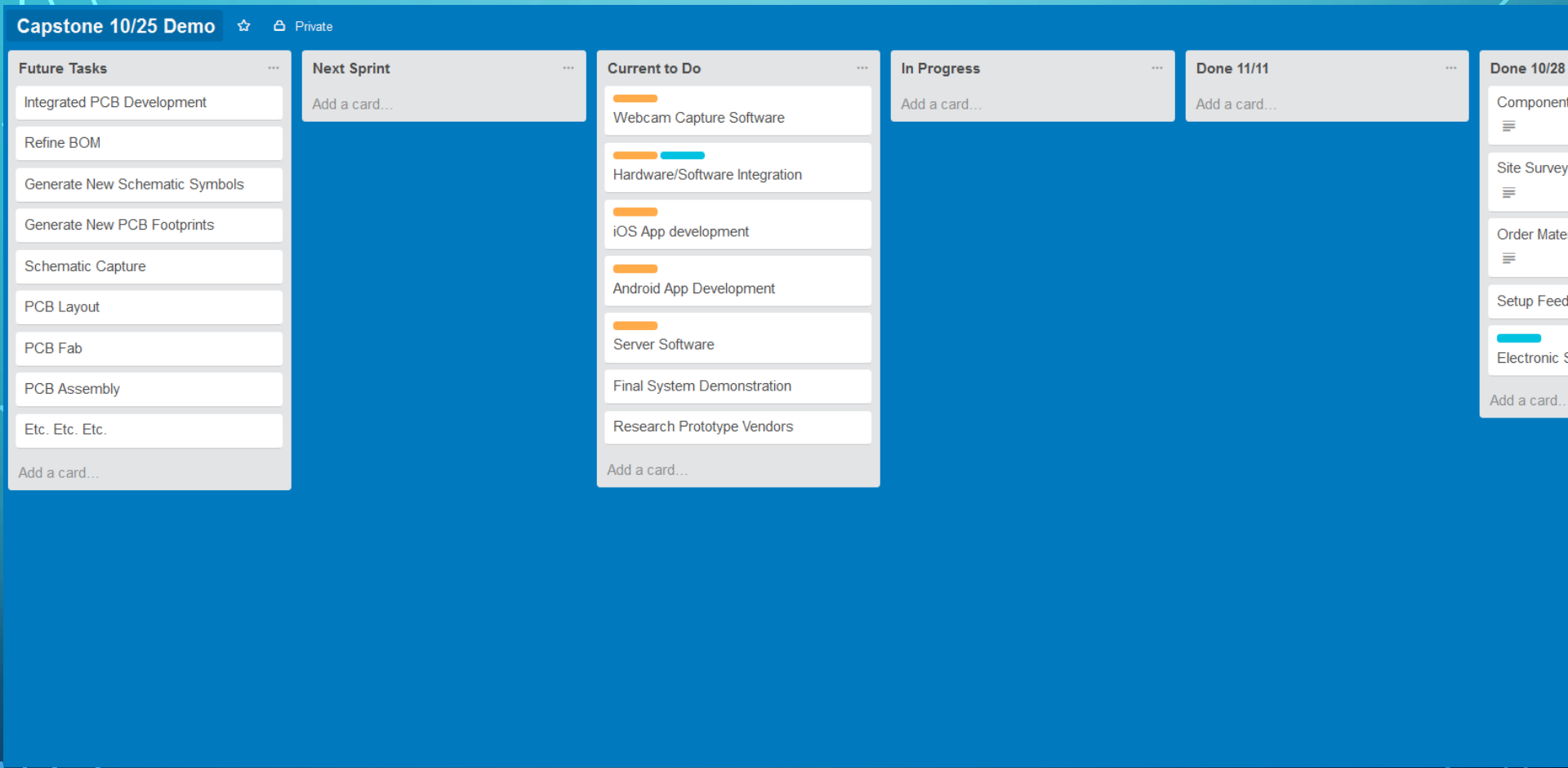
# SPRINT IN PROGRESS



# END OF SPRINT



# START OF SPRINT 2



# RISK TRACKING

# ABOUT RISK TRACKING

- Managed projects typically capture and track risks to achieving specific or overall goal. While Capstone projects don't need the same level of formal tracking as more complex projects, a basic assessment of risks to the Best Anticipated Outcome should be included.

# WHY TRACK RISK?

- Better understand your current project status
  - Everything may seem fine, but underlying risks might be jeopardizing your success
- Manage Expectations
  - Allow planning vs excuses
- Plan Mitigation Strategies
  - With time for them to be implemented
- A large number of unlikely events typically yields some that are realized

# CAPSTONE GUIDANCE

- Only track risks with a reasonable likelihood of occurring
- Remember that risks have a negative impact and may occur
  - Once it happens, it's no longer a risk but an issue
  - Some programs have an Opportunities Register for positive events that may occur
- Identify:
  - Critical decisions that need to be made, Findings that need to occur, Schedule targets that need to be hit, Points of failure, Assumptions made, Critical resources, etc

  that would impact the Best Anticipated Outcome of the project.
- Work backwards from your Best Anticipated Outcome

# CAPSTONE IMPLEMENTATION

- You'll create a risk table in your logbook, from the template provided to include:
  - Description of Risk
  - Impact to the Project (Consequences if risk comes true)
  - Likelihood of Risk Occurring
  - Seriousness of Risk Occurring
  - Grade of Risk
  - Mitigation Strategy, if applicable

| Grade | | | | |
|---|---|---|---|---|
| | Seriousness | | | |
| | | Low | Medium | High |
| Likelihood | Low | D | D | C |
| | Medium | D | C | B |
| | High | C | B | A |

| Recommended Action by Risk Grade | |
|---|---|
| Grade | Risk mitigation actions |
| A | Immediately identify and implement actions to reduce the likelihood and seriousness as a top priority. |
| B | Identify actions to reduce the likelihood and seriousness to implement as the risk become more likely/serious. |
| C | Identify actions to implement should the risk occur. |
| D | Monitor the risk for changes in the future. |

- Revisit weekly to update grade and action, add new risks, retire items that are no longer risks.
- Your current risk table will be included in your major progress reports throughout the year.

# RISK EXAMPLE

- Description: A critical system component is currently out of stock and may not be available in time for integration and testing
- Impact: A major feature of the project might not be implemented
- Likelyhood: Medium
- Seriousness: High
- Grade: B
- Mitigation Strategy: Identify when the schedule. Check stock daily or pay premium price (reduces likelihood of risk occurring) if it becomes available. As the need by date approaches, investigate alternative components that could be used instead. (reduces seriousness)

| Grade | | | | |
|---|---|---|---|---|
| | Seriousness | | | |
| Likelihood | | Low | Medium | High |
| | Low | D | D | C |
| | Medium | D | C | B |
| | High | C | B | A |

| Recommended Action by Risk Grade | |
|---|---|
| Grade | Risk mitigation actions |
| A | Immediately identify and implement actions to reduce the likelihood and seriousness as a top priority. |
| B | Identify actions to reduce the likelihood and seriousness to implement as the risk become more likely/serious. |
| C | Identify actions to implement should the risk occur. |
| D | Monitor the risk for changes in the future. |

# REQUIRED NEXT STEPS

- Discuss a project management approach with your TDs on Friday
  - Create Trello accounts or use Taiga or TD's preferred method
  - Note your program management decision in your logbook notes from the TD meeting.
  - Project status will be discussed on Tuesday evenings
- Start identifying risks, so that you have data to include in your logbook next week.
  - Logbook guidance will be provided in next slides and on the website
  - Update weekly
  - Include in your major progress report