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INTRODUCTION TO PROJECT DEFINITION

LAB : 1

COURSE : SOFTWARE CONSTRUCTION

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OBJECTIVES

- After completing this lab the student should be able to:

- Clearly understand the purpose writing project definition and project proposal.
- Understand the concept of a Software Constructions.
- Understand difference between database and data structure.

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WHAT IS PROJECT?

"PROJECT IS SOMETHING THAT MUST HAVE SOME START AND FINISH"

- Project, is a critical initiative aimed at addressing significant business challenges and seizing opportunities for improvement through **innovative software engineering solutions.** In today's competitive landscape, businesses face complex issues that demand efficient and effective solutions. This project represents a strategic response to these challenges.

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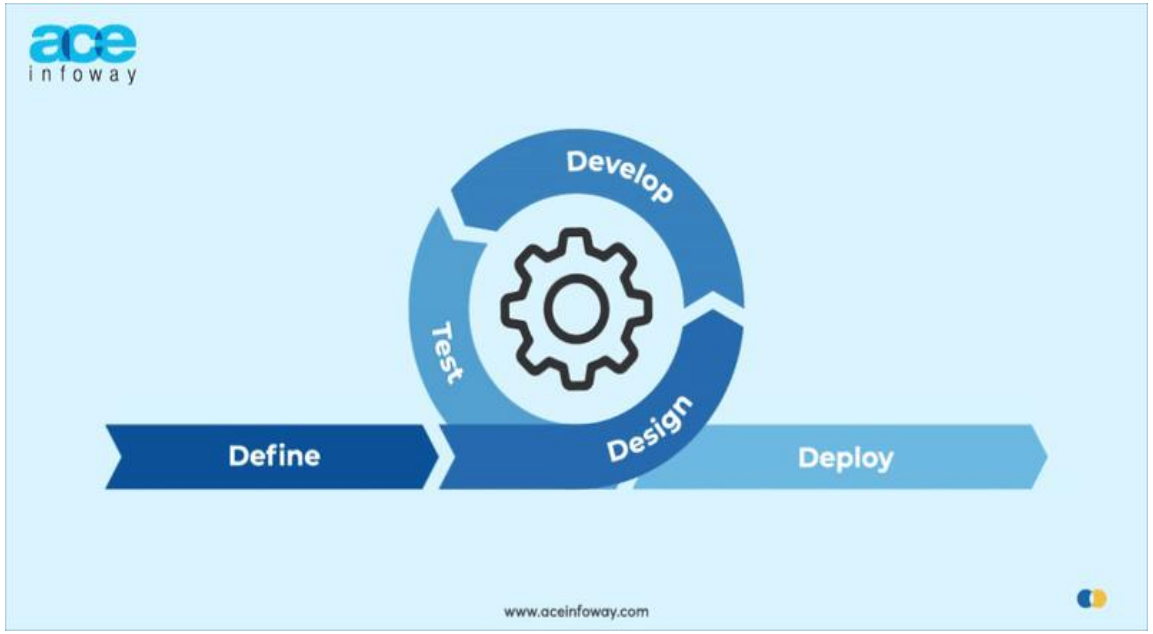
STEPS OF SOFTWARE CONSTRUCTION



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THE ROLE OF A SOFTWARE ENGINEER IN ADDRESSING BUSINESS PROBLEMS:

- Software engineers play a pivotal role in modern businesses.
- They act as problem solvers, architects, and builders of tech solutions.
- They bridge the gap between business needs and technology.
- They ensure companies can thrive in a rapidly evolving digital world.
- They are not merely programmers; they are architects of transformation.
- They diagnose and solve complex business problems through software.
- Their role extends beyond code; it includes understanding the problem domain.
- They design comprehensive solutions and ensure seamless implementation.

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IMPORTANCE OF DIAGNOSING A PROBLEM DEFINITION WITH A REAL-WORLD EXAMPLE:

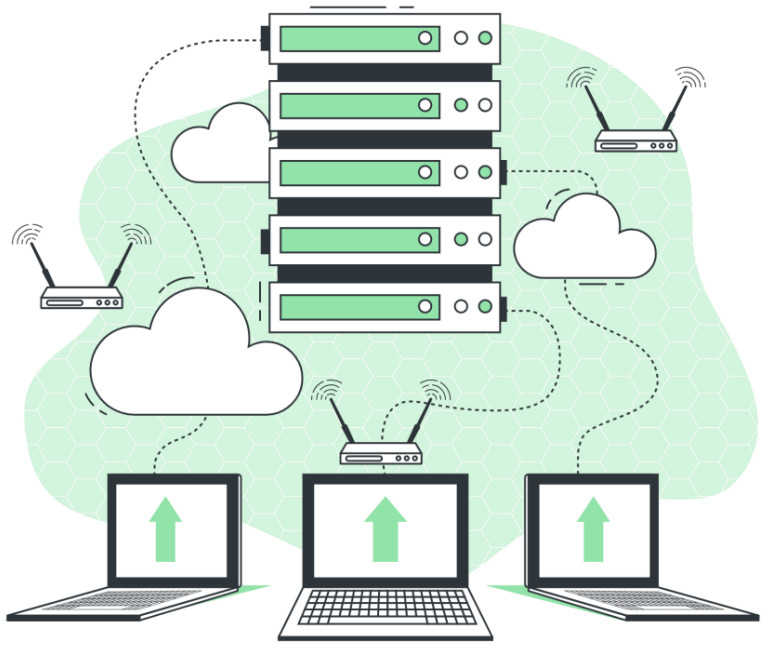
- Imagine a scenario where a patient experiences recurring health issues without a clear diagnosis. In such cases, treatment is often ineffective, and the patient's condition deteriorates. Similarly, in business, if we don't precisely define and diagnose the problems, we risk implementing solutions that don't address the root causes, wasting resources and time.

DIFFERENCE BETWEEN DATABASE AND DATA STRUCTURE

Feature	Database	Data Structure
Definition	A collection of data that is stored and managed in permanent memory.	A way of organizing and storing data so as to ease the accessing and modification of data.
Purpose	To store and manage large amounts of data efficiently.	To provide efficient ways to store and access data.
Storage	Permanent memory, such as hard drives or SSDs.	Temporary memory, such as RAM or CPU registers.
Access	Controlled by a database management system (DBMS).	Controlled by the programmer.
Types	Relational, NoSQL, hierarchical, network, object-oriented.	Arrays, linked lists, stacks, queues, trees, graphs.
Examples	MySQL, Oracle Database, MongoDB, PostgreSQL.	Python lists, C++ linked lists, Java stacks, Python queues, binary trees, directed graphs.

REAL-WORLD APPLICATION EXAMPLES:

- **Database:**
- An airline reservation system stores passenger details, flight schedules, and seat availability in a database.
- A hospital management system maintains patient records, treatment history, and appointment schedules in a database.

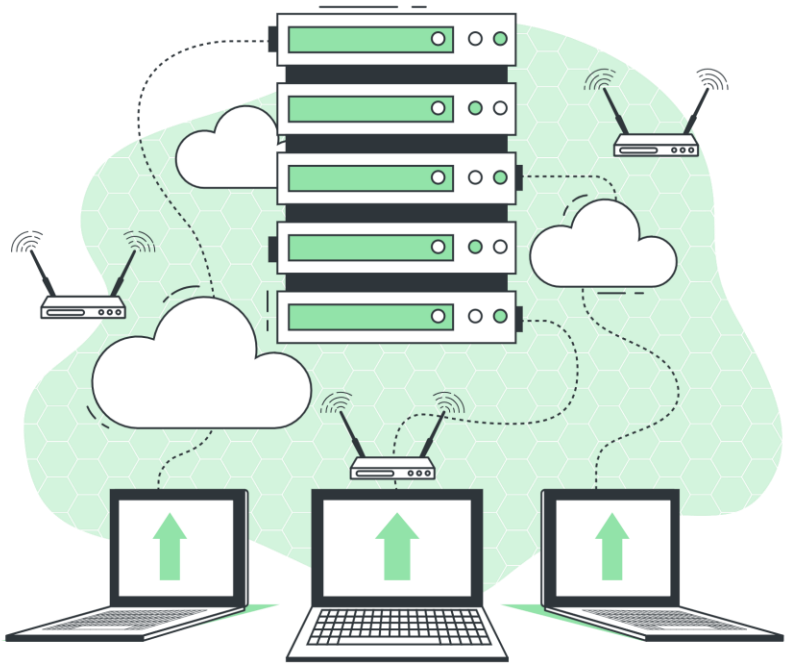


- **Data Structures:**
- A web browser uses a stack data structure to manage the history of visited web pages.
- A music player employs a queue data structure to manage the playlist of songs to be played.

REAL WORLD EXAMPLES:

- **Database:**
- Think of a database as a well-organized library where books (data) are categorized and indexed for easy retrieval. You consult a library's catalog (index) to find the book (data) you need.

- **Data Structures:**
- Data structures are like containers or toolboxes that help you organize and access your tools (data) efficiently. For instance, a toolbox has compartments (data structures) to store different types of tools (data) for easy access when needed.



EXAMPLE OF PROJECT DEFINITION:

For employees who wish to order meals from the company cafeteria or from local restaurants on-line, the Cafeteria Ordering System is an Internet-based application that will accept individual or group meal orders, process payments, and trigger delivery of the prepared meals to a designated location on the Process Impact campus. Unlike the current telephone and manual ordering processes, employees who use the Cafeteria Ordering System will not have to go to the cafeteria to get their meals, which will save them time and will increase the food choices available to them.

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FEATURES BRAIN STORMING : (MIND MEISTER)

Streamlined Meal Ordering System for Employees

For employees who wish to order meals from the company cafeteria or from local restaurants on- line, the Cafeteria Ordering System is an Internet-based application that will accept individual or group meal orders, process payments, and trigger delivery of the prepared meals to a designated location on the Process Impact campus. Unlike the current telephone and manual ordering proc- esses, employees who use the Cafeteria Ordering System will not have to go to the cafeteria to get their meals, which will save them time and will increase the food choices available to them. (created by Eng .Hamza)

- Customization: Allow users to personalize orders based on diet and size.
- Easy Ordering: Create a simple interface for meal orders from cafeteria or restaurants.
- Secure Payments: Ensure safe online payment options.
- Delivery Choices: Offer flexible delivery times and locations on campus.
- Menu Updates: Keep menus current with specials and promotions.
- Order Tracking: Let users follow order status and history.
- Notifications: Send order and delivery updates via email or SMS.
- Integration: Connect with cafeteria operations for efficient order processing.
- User Profiles: Enable saved preferences and guest checkout.
- Feedback System: Gather user ratings and comments for improvements.
- Promotions: Implement discounts and loyalty rewards.
- Budget Control: Set spending limits and receive budget alerts.

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STORY BOARD : (MIRO)

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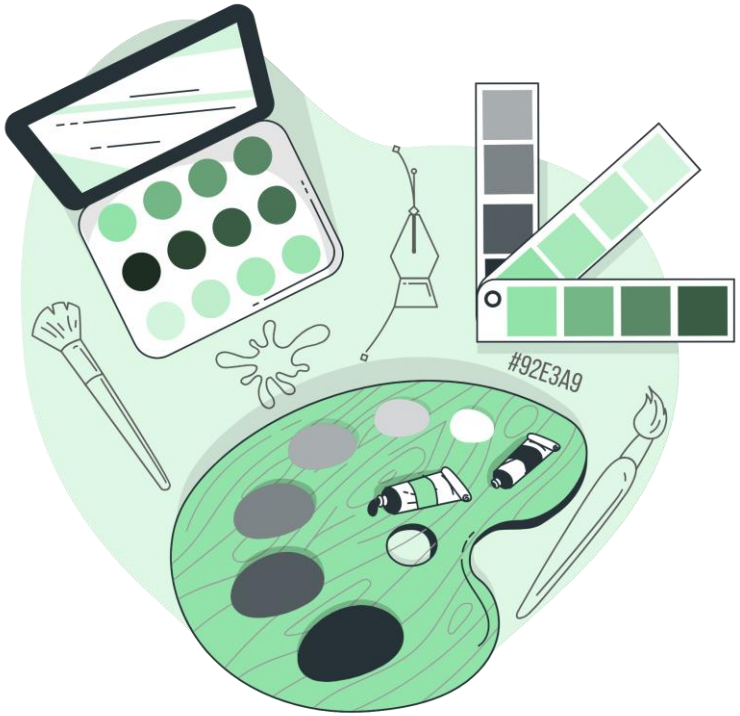
TOOLS USED FOR THIS LAB:

Brainstorming Tools:

- Mind meister (for mind maps etc.)
- Miro (for story boards for defining roles and other important keynotes)

Proposal sharing Tools:

- Trello



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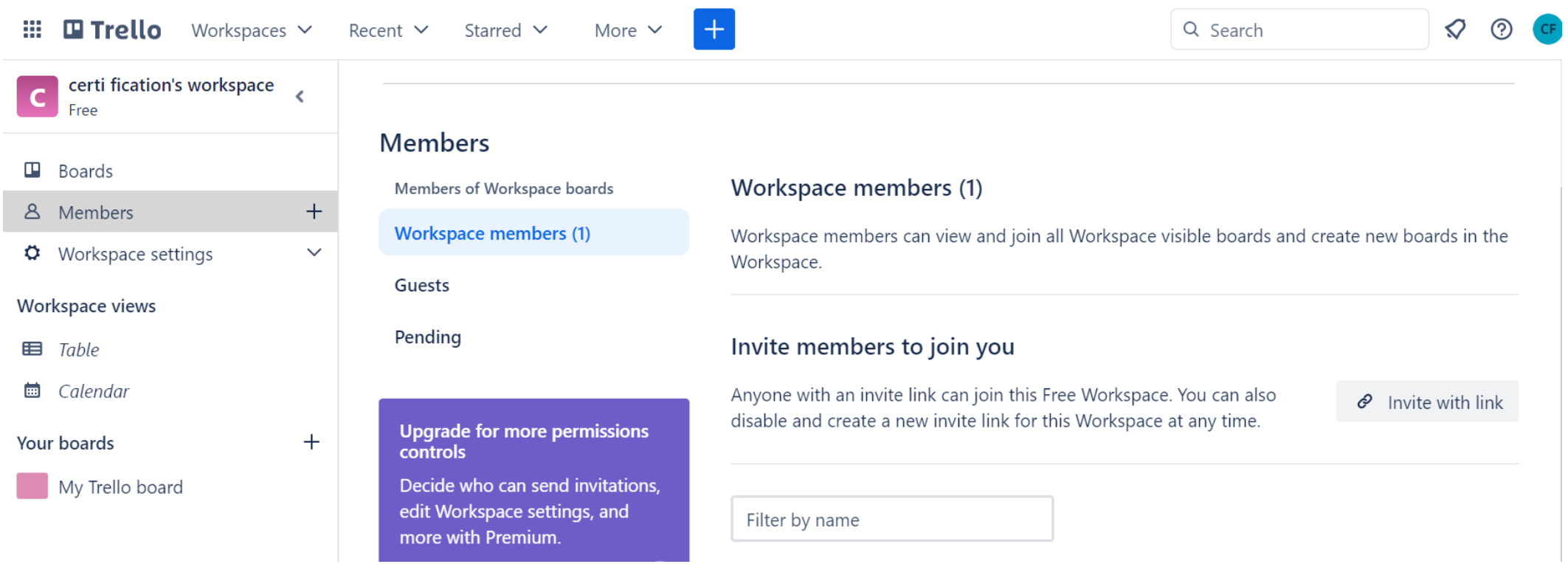
TRELLO



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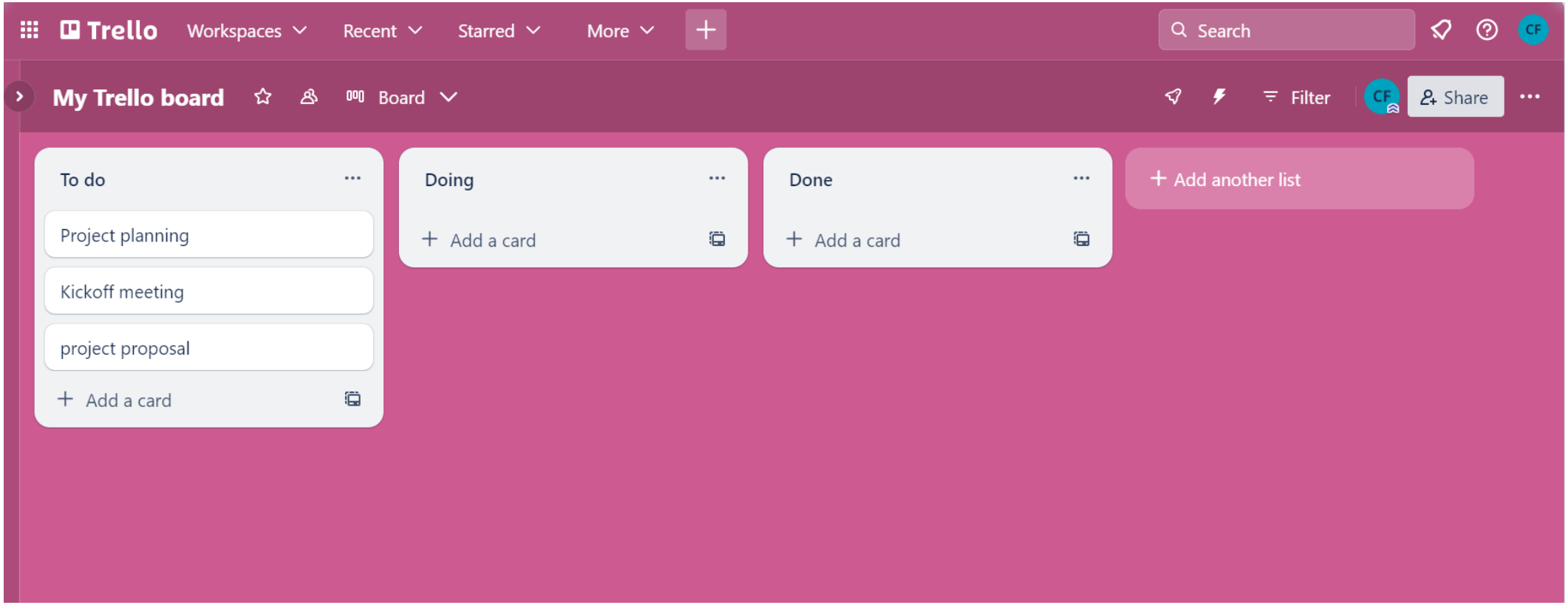
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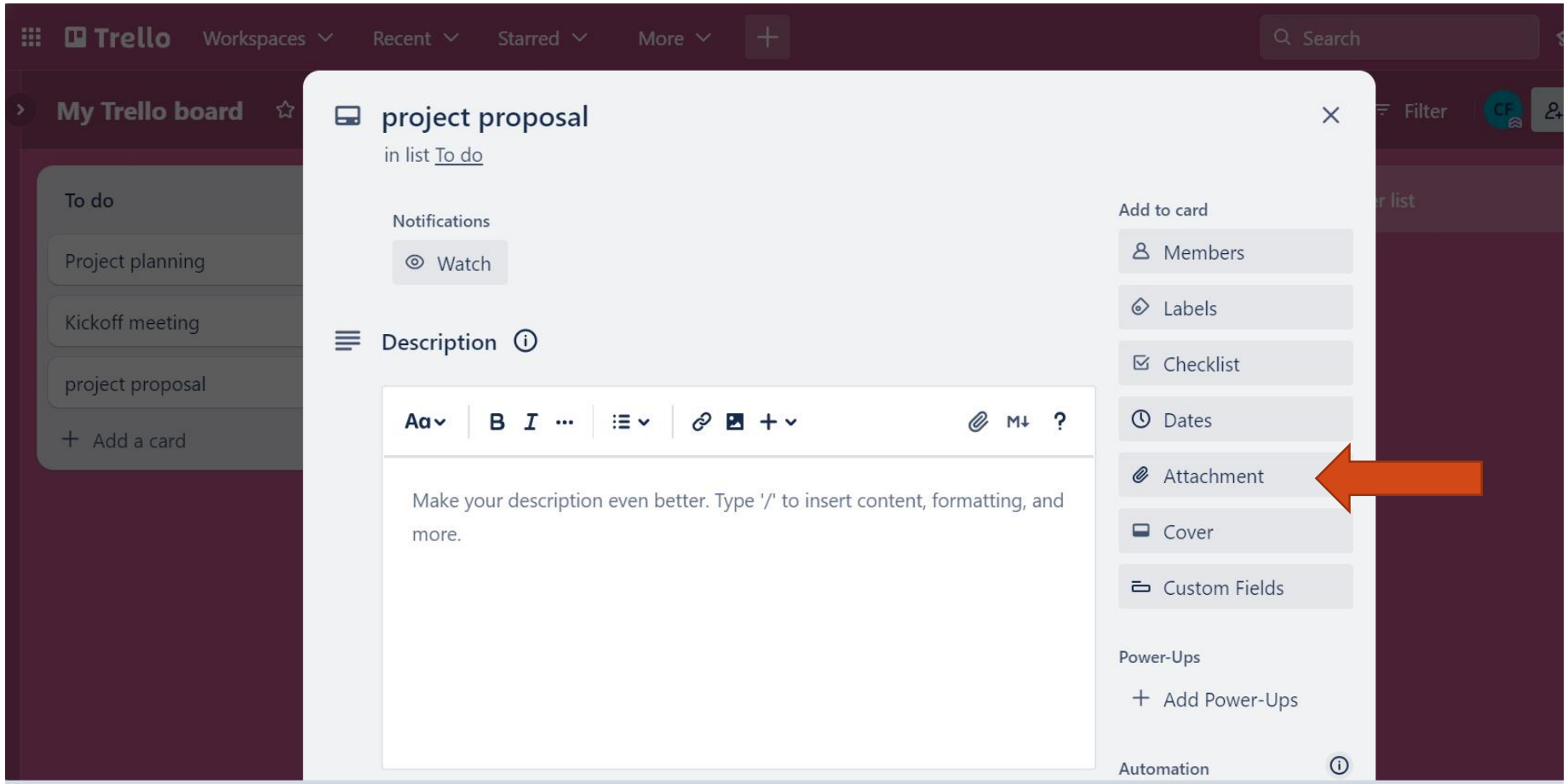
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Project planning
Kickoff meeting
project proposal
Add a card
project proposal
in list To do
Notifications
Watch
Description
Make your description even better. Type '/' to insert content, formatting, and more.
Add to card
Members
Labels
Checklist
Dates
Attachment
Cover
Custom Fields
Power-Ups
Add Power-Ups
Automation

TASKS 1:

- Form groups of 4 or 5 students (with one of them as a leader and identify their roles). Brainstorm its features (each group must have unique project)(maximum member 3-4) and list 5 suitable project titles. Choose one of the projects from your list. Try to write (a hypothetical) project definition for it.
- Example:

For employees who wish to order meals from the company cafeteria or from local restaurants on-line, the Cafeteria Ordering System is an Internet-based application that will accept individual or group meal orders, process payments, and trigger delivery of the prepared meals to a designated location on the Process Impact campus. Unlike the current telephone and manual ordering proc-esses, employees who use the Cafeteria Ordering System will not have to go to the cafeteria to get their meals, which will save them time and will increase the food choices available to them.

TASK 2 :

- Submit project proposal in the next class along with group name, members name, leader name and their roles other than the above given example of project definition also use project management tool like trello to share the proposal with the team members of the group and paste just few screenshots as a proof of work.

WHAT IS TRELLO

- **Trello**: Trello is a project management tool that allows you to create boards, lists, and cards for organizing tasks and project details. You can attach project proposal documents to cards and collaborate with your team.

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THANK YOU