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University Of Sri Lanka

IS5107 – Project Management Practicum

Group 04

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01

Introduction

Augmented Reality Shopping App

Introduction

Augmented reality (AR) is changing shopping by blending physical and digital experiences. The AR Shopping App lets users visualize products in their real-world environment using smartphones or tablets. Features like

- virtual try-ons,
- 3D product models,
- and personalized recommendations

enhance the shopping experience.

The app attracts tech-savvy millennials and Gen Z who prefer interactive and immersive shopping. It helps retailers stay competitive by making online shopping more engaging and customer-friendly.



02

Target

Aims and Objectives

1. Enhance Online Shopping Experience
2. Increase Customer Engagement and Satisfaction
3. Provide Competitive Advantage for Retailers
4. Reduce Return Rates
5. Expand Market Reach
6. Promote Sustainability



03

Process

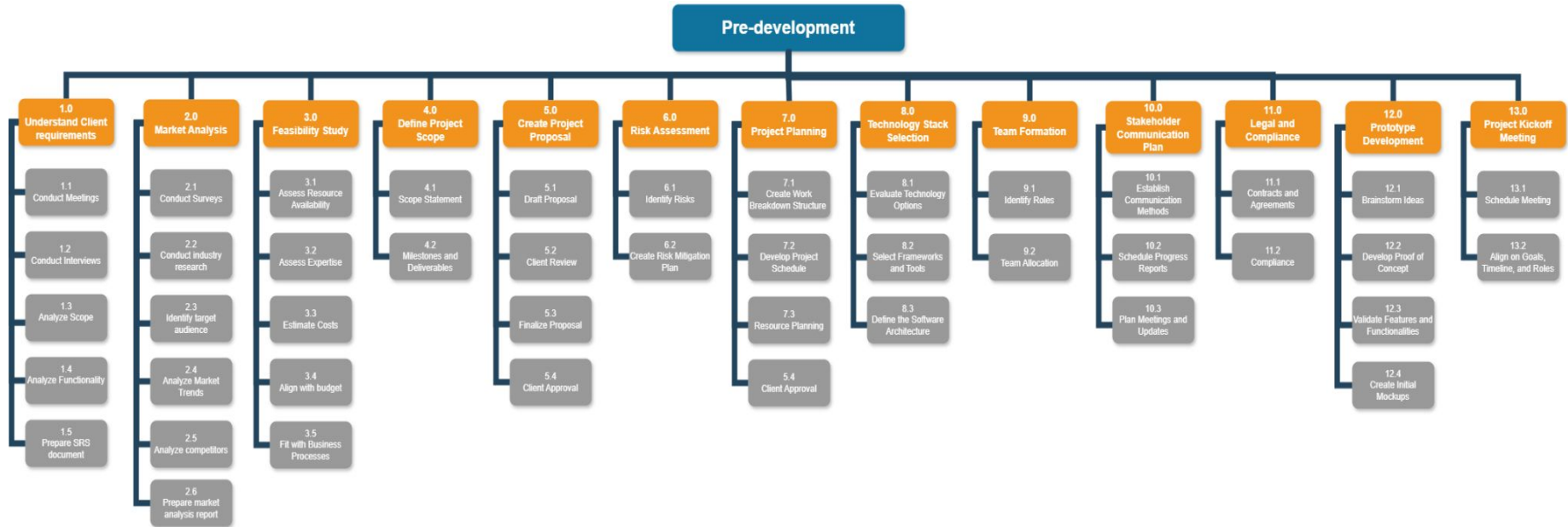
Pre Development

The pre-development phase of the Augmented Reality Shopping App mainly focuses on :

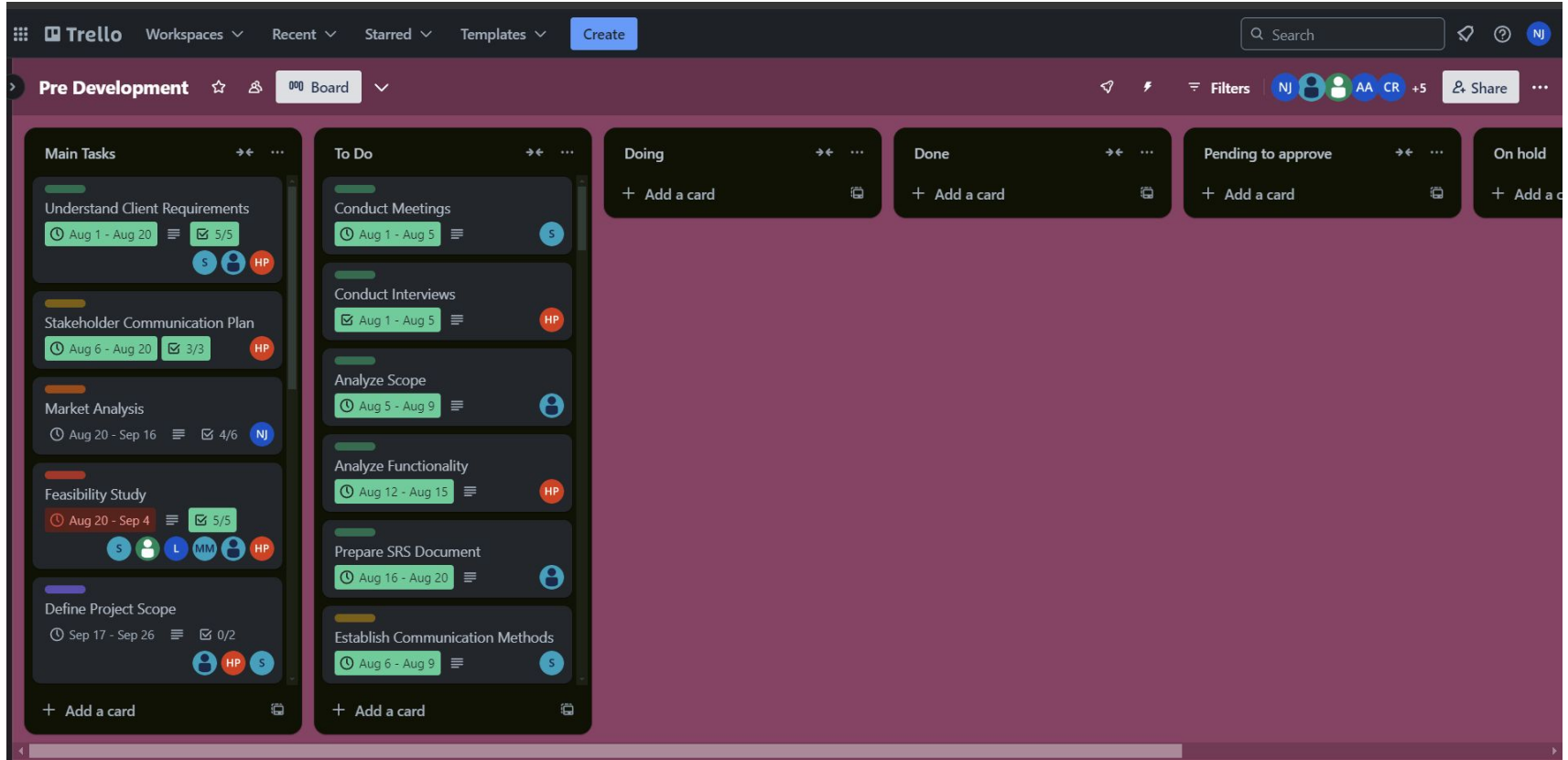
- gathering requirements,
- analyzing the market,
- defining the project scope,
- and selecting the technology stack.

It also includes risk assessment, team formation, and planning the project timeline to ensure a smooth development process.

Pre Development



Pre Development



Pre Development

The screenshot displays a Trello board for 'Pre Development'. The board is organized into six columns representing different stages of the project workflow:

- Main Tasks:** Contains five cards: 'Understand Client Requirements' (Aug 1 - Aug 20, 5/5 progress, assigned to S, HP), 'Stakeholder Communication Plan' (Aug 6 - Aug 20, 3/3 progress, assigned to HP), 'Market Analysis' (Aug 20 - Sep 16, 4/6 progress, assigned to NJ), 'Feasibility Study' (Aug 20 - Sep 4, 5/5 progress, assigned to S, L, MM, HP), and 'Define Project Scope' (Sep 17 - Sep 26, 0/2 progress, assigned to HP, S).
- To Do:** Contains four cards: 'Scope Statement' (Sep 17 - Sep 19, assigned to HP), 'Milestones and Deliverables' (Sep 17 - Sep 20, assigned to S), 'Identify Risks' (Sep 17 - Sep 20, assigned to CR, AA), and 'Create a Risk Mitigation Plan' (Sep 23 - Sep 27, assigned to CR, AA). Below these are 'Draft Proposal' (Sep 23 - Sep 26, assigned to S) and 'Client Review' (Sep 27 - Oct 1, assigned to S).
- Doing:** Contains one card: 'Analyze Competitors' (Sep 9 - Sep 12, assigned to NJ).
- Done:** Contains five cards: 'Identify Target Audience' (Aug 30 - Sep 3, assigned to NJ), 'Analyze Market Trends' (Sep 4 - Sep 6, assigned to NJ), 'Assess Resource Availability' (Aug 20 - Aug 22, assigned to S), 'Assess Expertise' (Aug 20 - Aug 23, assigned to an unnamed user), 'Align with Budget' (Aug 29 - Sep 2, assigned to MM, L), and 'Fit with Business Processes' (Sep 2 - Sep 4, assigned to HP).
- Pending to approve:** Contains one card: 'Prepare Market Analysis Report' (Sep 13 - Sep 16, assigned to NJ).
- On hold:** Contains one card: 'Estimate' (Aug 20 - Aug 20, assigned to an unnamed user).

The interface includes a top navigation bar with 'Trello', 'Workspaces', 'Recent', 'Starred', 'Templates', and a 'Create' button. A search bar and user avatars are also visible. The board title 'Pre Development' is at the top left, and a 'Board' dropdown is next to it. The right side of the board shows filters for users (NJ, AA, CR) and a '+5' indicator, along with a 'Share' button.

Pre Development

The screenshot shows a Trello board named "Pre Development" with a Kanban workflow. The board is organized into six columns: "Main Tasks", "To Do", "Doing", "Done", "Pending for approval", and "On hold".

Main Tasks Column:

- Item 1:** "Main Tasks" (Progress: 0/2, Due: Oct 4, 2024 - Oct 11, 2024)
- Item 2:** "Project Planning" (Progress: 0/4, Due: Sep 26, 2024 - Oct 18, 2024)
- Item 3:** "Prototype Development" (Progress: 0/4, Due: Nov 4, 2024 - Nov 11, 2024)
- Item 4:** "Project Kickoff Meeting" (Progress: 0/2, Due: Nov 11, 2024 - Nov 15, 2024)

Done Column:

- Task 1:** "Develop Proof of Concept" (Due: Nov 7, 2024 - Nov 11, 2024)
- Task 2:** "Validate Features and Functionality" (Due: Nov 4, 2024 - Nov 7, 2024)
- Task 3:** "Create Initial Mockups" (Due: Nov 7, 2024 - Nov 11, 2024)
- Task 4:** "Schedule Meeting" (Due: Nov 11, 2024 - Nov 12, 2024)
- Task 5:** "Align on Goals, Timelines, and Roles" (Due: Nov 13, 2024 - Nov 15, 2024)

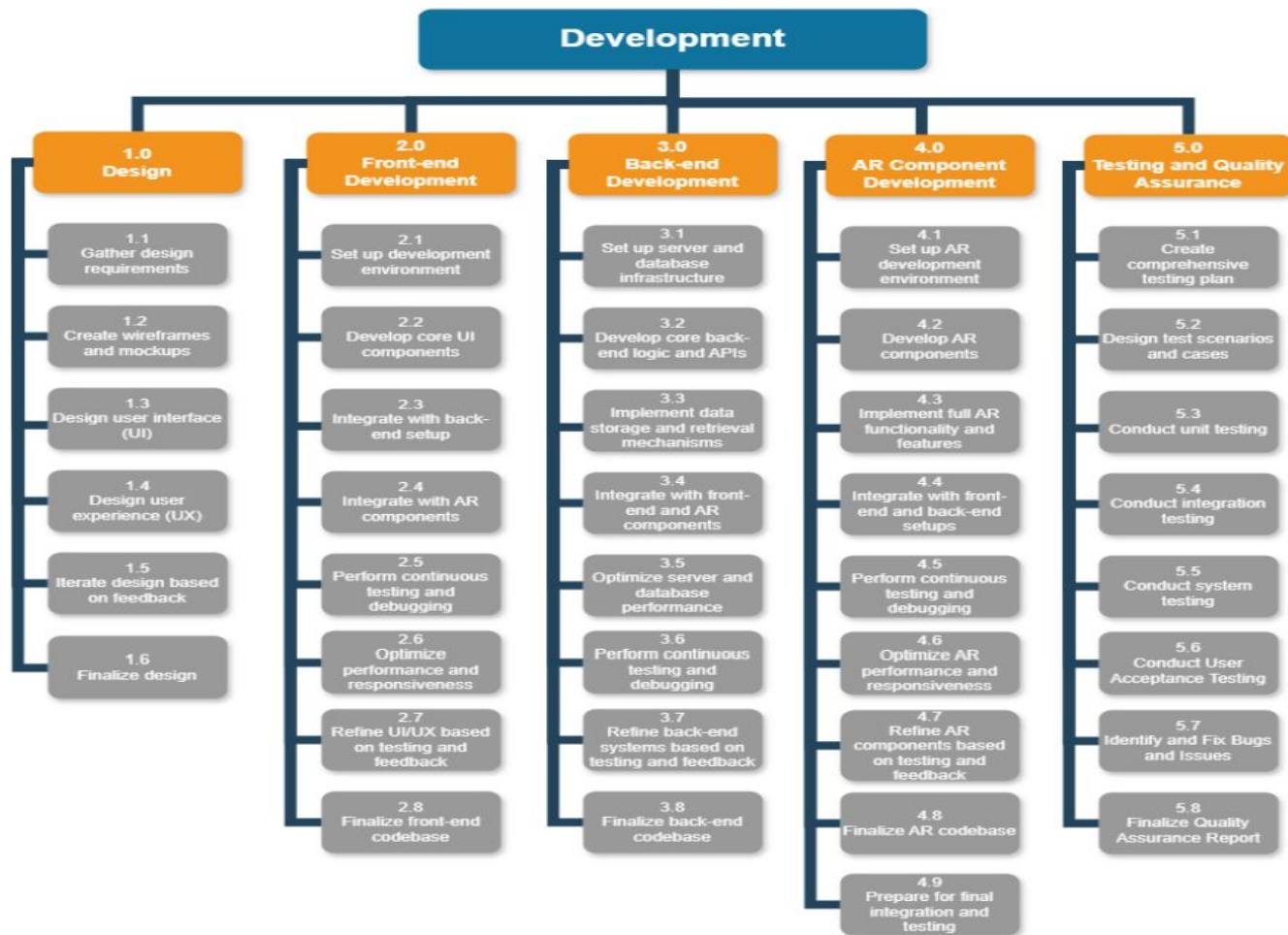
The URL at the bottom of the screenshot is <https://trello.com/c/wXieNIB/53-develop-proof-of-concept>.

Development

The development phase of the Augmented Reality Shopping App involves

- UI/UX design,
- front-end and back-end development,
- AR component integration,
- and quality assurance.

The process includes setting up development environments, creating and refining UI/UX, implementing AR functionality, integrating components, and conducting continuous testing. The final stage focuses on performance optimization, debugging, and user acceptance testing to ensure a seamless and efficient application.



Development

The screenshot displays a Trello board for a project named "development". The board is organized into six columns representing different stages of the workflow: "Main Tasks", "To Do", "Doing", "Done", "Pending for approval", and "On Hold".

- Main Tasks:** Contains four task cards. The first card, "Design", is due Nov 18, 2024 - Dec 11, 2024. The second, "Front-end Development", is due Dec 12, 2024 - Jan 29. The third, "Back-end Development", is due Dec 16, 2024 - Jan 16. The fourth, "AR Component Development", is due Dec 30, 2024 - Jan 31. A fifth card, "Testing and Quality Assurance", is partially visible at the bottom.
- To Do:** Contains three task cards. The first, "Design", is due Nov 18, 2024 - Nov 20, 2024. The second, "Create wireframes and mockups", is due Nov 21, 2024 - Nov 25, 2024. The third, "Design user interface(UI)", is due Nov 26, 2024 - Dec 3, 2024. A fourth card, "Design user experience (UX)", is due Nov 26, 2024 - Dec 3, 2024. A fifth card, "Iterate design based on feedback", is due Dec 4, 2024 - Dec 6, 2024.
- Doing:** Empty column with a placeholder "Add a card".
- Done:** Empty column with a placeholder "Add a card".
- Pending for approval:** Empty column with a placeholder "Add a card".
- On Hold:** Empty column with a placeholder "Add a card".

The interface includes a top navigation bar with "Workspaces", "Recent", "Starred", and "Templates" tabs. A search bar is located in the top right. The board is currently set to "Board" view. User avatars and a "Share" button are visible in the top right corner of the board area.

Development

The screenshot displays a Kanban board for a project named "development". The board is organized into six columns representing different stages of the workflow:

- Main Tasks:** Contains four task cards. The first is "Design" (Nov 18, 2024 - Dec 11, 2024) with 2/6 progress. The second is "Front-end Development" (Dec 12, 2024 - Jan 29). The third is "Back-end Development" (Dec 16, 2024 - Jan 16). The fourth is "AR Component Development" (Dec 30, 2024 - Jan 31). A fifth card for "Testing and Quality Assurance" is partially visible at the bottom.
- To Do:** Contains four task cards. The first is "Front-end Development" (Jan 15 - Jan 17) with the task "Integrate with AR components". The second is "Front-end Development" (Started: Jan 20) with the task "Perform continuous testing and debugging". The third is "Front-end Development" (Jan 20 - Jan 22) with the task "Optimize performance and responsiveness". The fourth is "Front-end Development" (Jan 23 - Jan 24) with the task "Refine UI/UX based on testing and feedback".
- Doing:** Contains four task cards. The first is "Design" (Nov 26, 2024 - Dec 3, 2024) with the task "Design user experience (UX)". The second is "Design" (Dec 4, 2024 - Dec 6, 2024) with the task "Iterate design based on feedback". The third is "Design" (Dec 11, 2024 - Dec 12, 2024) with the task "Finalize design". The fourth is "Front-end Development" (Dec 12, 2024 - Dec 13, 2024) with the task "Setup development environment".
- Done:** A column for completed tasks, currently empty.
- Pending for approval:** A column for tasks pending approval, currently empty.
- On Hold:** A column for tasks on hold, currently empty.

Each task card includes a title, a date range, a progress indicator (e.g., 2/6, 0/8), and icons for assignees or team members. The board interface includes a top navigation bar with options like "Workspaces", "Recent", "Started", "Templates", "Create", "Search", "Due Next", "Power-Ups", "Automation", "Filters", "Share", and a user profile section.

Development

The screenshot displays a Trello board for a project named "development". The board is organized into six columns representing different stages of the workflow:

- Main Tasks:** Contains three cards: "Design" (Nov 18, 2024 - Dec 11, 2024), "Front-end Development" (Dec 12, 2024 - Jan 29), and "Back-end Development" (Dec 16, 2024 - Jan 16). A fourth card, "AR Component Development" (Dec 30, 2024 - Jan 31), is partially visible at the bottom.
- To Do:** Contains three cards: "Back-end Development" (Dec 30, 2024 - Jan 1), "Back-end Development" (Jan 2 - Jan 6), and "Back-end Development" (Optimize server and database performance).
- Doing:** Contains four cards: "Front-end Development" (Jan 2 - Jan 6), "Front-end Development" (Jan 15 - Jan 17), "Front-end Development" (Perform continuous testing and debugging, Started: Jan 20), and "Front-end Development" (Refine UI/UX based on testing and feedback, Jan 23 - Jan 24).
- Done:** Contains four cards: "Design" (Iterate design based on feedback, Dec 4, 2024 - Dec 6, 2024), "Design" (Design user experience (UX), Nov 26, 2024 - Dec 3, 2024), "Design" (Design user interface(UI), Nov 26, 2024 - Dec 3, 2024), and "Design" (Create wireframes and mockups, Nov 21, 2024 - Nov 25, 2024).
- Pending for approval:** Contains one card: "Design" (Finalize design, Dec 11, 2024 - Dec 12, 2024).
- On Hold:** Currently empty.

The top navigation bar includes "Workspaces", "Recent", "Starred", "Templates", and a "Create" button. The board header shows "development" as the workspace name, "Board" as the view type, and various filters and sharing options. Each card includes a title, a due date range, a progress indicator (e.g., 2/6, 0/8), and icons for team members assigned to the task.

Development

The screenshot displays a Trello board for a project named "development". The board is organized into six columns representing different stages of the workflow:

- Main Tasks:** Contains four task cards.
 - Design:** Due Nov 18, 2024 - Dec 11, 2024. Progress 2/6. Assigned to L and S.
 - Front-end Development:** Due Dec 12, 2024 - Jan 29. Progress 0/8. Assigned to L, S, and MM.
 - Back-end Development:** Due Dec 16, 2024 - Jan 16. Progress 0/8. Assigned to I, NJ, and another user.
 - AR Component Development:** Due Dec 30, 2024 - Jan 31. Progress 0/9. Assigned to two users.
- To Do:** Empty column with a placeholder "Add a card".
- Doing:** Empty column with a placeholder "Add a card".
- Done:** Contains four completed task cards.
 - Back-end Development:** Started Jan 9. Task: "Refine back-end systems based on testing and feedback". Due Jan 10 - Jan 13. Assigned to NJ and I.
 - Back-end Development:** Started Jan 14 - Jan 16. Task: "Finalize back-end codebase". Assigned to NJ, I, and another user.
 - Testing and Quality Assurance:** Started Mar 3 - Mar 8. Task: "Create a comprehensive testing plan". Assigned to AA.
 - Testing and Quality Assurance:** Started Mar 20 - Mar 25. Task: "Design test scenarios and cases". Assigned to AA.
 - Testing and Quality Assurance:** Started Mar 27 - Mar 31. Task: "Conduct system testing". Assigned to AA.
 - Testing and Quality Assurance:** Task: "Conduct initial user acceptance testing".
- Pending for approval:** Empty column with a placeholder "Add a card".
- On Hold:** Empty column with a placeholder "Add a card".

The top navigation bar includes options for Workspaces, Recent, Starred, Templates, and a Create button. The board settings at the top show "development" as the workspace, "Board" as the view, and various filters and automation options. The bottom of the board shows a search bar and a share button.

Post Development

The post-development phase of the Augmented Reality Shopping App focuses on

- testing,
- deployment,
- maintenance,
- and scaling.

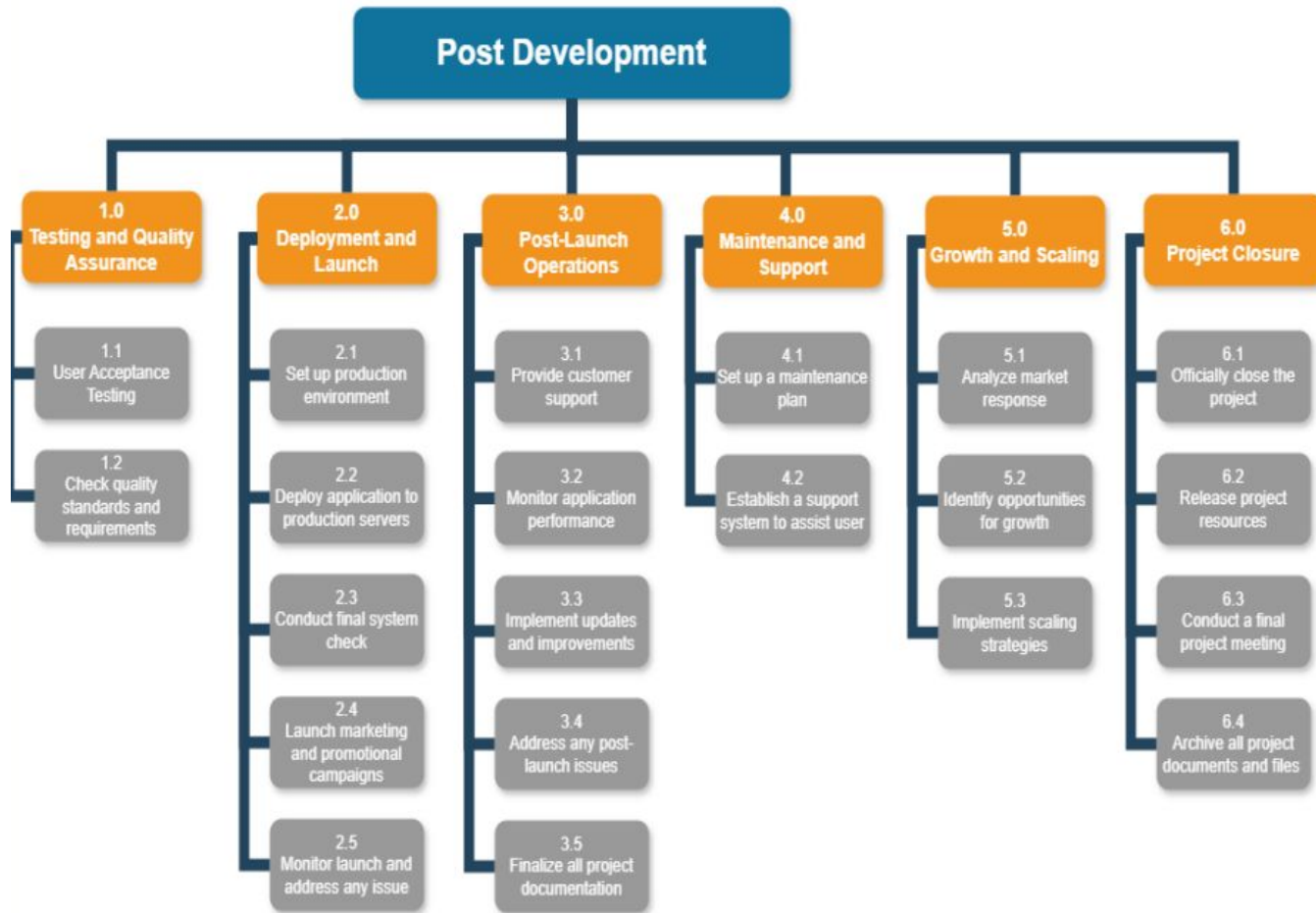
It begins with final user acceptance testing (UAT) and quality checks before deployment. The application is then launched, supported by marketing campaigns and real-time monitoring.

Post Development

Post-launch operations include :

- customer support,
- performance tracking,
- bug fixes, and updates.

A maintenance plan ensures ongoing stability, while market analysis identifies opportunities for growth. The project concludes with resource release, a final review, and documentation archiving, ensuring long-term sustainability and scalability.



Post Development

Trello Workspaces Recent Starred Templates Create

Search

Power-Ups Automation Filters

Share

Augmented Reality Shopping App

Post development

Workspace visible Board

Main Tasks

- Testing and Quality Assurance**
Testing and Quality Assurance
Mar 13 - Mar 21 1/2
- Deployment and Launch**
Deployment and Launch
Mar 22 - Apr 10 0/5
- Post-Launch Operations**
Post-Launch Operations
Apr 11 - Apr 29 0/5
- Maintenance and Support**
Maintenance and Support
Apr 11 - Apr 18 0/2
- Growth and Scaling**
Growth and Scaling
Apr 21 - May 2 0/3
- Project Closure**
Project Closure
May 5 - May 14 0/4

To Do

- Testing and Quality Assurance**
User Acceptance Testing (Final)
Mar 13 - Mar 18
- Testing and Quality Assurance**
Check Quality Standards and Requirements
Mar 18 - Mar 21
- Deployment and Launch**
Set up Production Environment
Mar 22 - Mar 27
- Deployment and Launch**
Deploy Application to Production Servers
Mar 26 - Mar 28
- Deployment and Launch**
Conduct Final System Check
Mar 18 - Mar 25
- Deployment and Launch**
Launch Marketing and Promotional Campaigns
Mar 25 - Apr 10
- Deployment and Launch**
Monitor Launch and Address Any Issues
Apr 2 - Apr 10
- Post-Launch Operations**
Provide customer support
Apr 11 - Apr 29

Doing

+ Add a card

Done

+ Add a card

Pending for approval

+ Add a card

On hold

+ Add a card

Boards

Members

Workspace settings

Workspace views

- Table
- Calendar

Your boards

- development
- Post development**
- Pre Development

Post Development

The screenshot displays a Trello workspace for 'Augmented Reality Shopping App'. The board is titled 'Post development' and is set to 'Workspace visible'. It features a sidebar with navigation options like Boards, Members, Workspace settings, and Workspace views. The main area shows six columns representing different stages of task completion:

- Main Tasks:** Contains cards for 'Testing and Quality Assurance' (Mar 13 - Mar 21), 'Deployment and Launch' (Mar 22 - Apr 10), 'Post-Launch Operations' (Apr 11 - Apr 29), 'Maintenance and Support' (Apr 11 - Apr 18), 'Growth and Scaling' (Apr 21 - May 2), and 'Project Closure' (May 5 - May 14).
- To Do:** Contains cards for 'Post-Launch Operations' (Apr 25 - Apr 29), 'Finalize All Project Documentation' (Apr 20 - Apr 29), 'Set Up a Maintenance Plan' (Apr 11 - Apr 18), 'Establish a Support System to Assist Users' (Apr 11 - Apr 18), 'Analyze Market Response' (Apr 21 - May 1), 'Identify Opportunities for Growth' (Apr 22 - Apr 30), 'Implement Scaling Strategies' (Apr 24 - May 2), 'Officially Close the Project' (May 5 - May 10), and 'Release Project Resources'.
- Doing:** Contains cards for 'User Acceptance Testing (Final)' (Mar 13 - Mar 18), 'Check Quality Standards and Requirements' (Mar 18 - Mar 21), 'Set up Production Environment' (Mar 22 - Mar 27), 'Deploy Application to Production Servers' (Mar 26 - Mar 28), 'Conduct Final System Check' (Mar 18 - Mar 25), 'Launch Marketing and Promotional Campaigns' (Mar 25 - Apr 10), and 'Monitor Launch and Address Any Issues' (Apr 2 - Apr 10).
- Done:** A column for completed tasks, currently empty.
- Pending for approval:** A column for tasks pending approval, currently empty.
- On hold:** A column for tasks on hold, currently empty.

Each card includes a title, a date range, a progress indicator (e.g., 1/2, 0/5), and assigned team members represented by avatars.

Post Development

The screenshot displays a Trello workspace for 'Augmented Reality Shopping App'. The main board, 'Post development', is organized into six columns representing different stages of the project lifecycle:

- Main Tasks:** Contains cards for 'Testing and Quality Assurance' (Mar 13 - Mar 21), 'Deployment and Launch' (Mar 22 - Apr 10), 'Post-Launch Operations' (Apr 11 - Apr 29), 'Maintenance and Support' (Apr 11 - Apr 18), 'Growth and Scaling' (Apr 21 - May 2), and 'Project Closure' (May 5 - May 14).
- To Do:** Contains cards for 'Growth and Scaling' (Apr 21 - May 1), 'Growth and Scaling' (Apr 22 - Apr 30), 'Growth and Scaling' (Apr 24 - May 2), 'Project Closure' (May 5 - May 10), 'Project Closure' (May 6 - May 11), 'Project Closure' (May 13), 'Project Closure' (May 14), and 'Project Closure' (May 14).
- Doing:** Contains cards for 'Deployment and Launch' (Apr 2 - Apr 10), 'Post-Launch Operations' (Apr 11 - Apr 29), 'Post-Launch Operations' (Apr 12 - Apr 19), 'Post-Launch Operations' (Apr 18 - Apr 25), 'Post-Launch Operations' (Apr 25 - Apr 29), 'Post-Launch Operations' (Apr 20 - Apr 29), 'Maintenance and Support' (Apr 11 - Apr 18), and 'Maintenance and Support' (Apr 11 - Apr 18).
- Done:** Contains cards for 'Testing and Quality Assurance' (Mar 13 - Mar 18), 'Testing and Quality Assurance' (Mar 18 - Mar 21), 'Deployment and Launch' (Mar 22 - Mar 27), 'Deployment and Launch' (Mar 26 - Mar 28), and 'Deployment and Launch' (Mar 18 - Mar 25).
- Pending for approval:** Contains a card for 'Deployment and Launch' (Mar 25 - Apr 10).
- On hold:** Contains a card for 'Add a card'.

The board also features a sidebar with navigation options like 'Boards', 'Members', 'Workspace settings', and 'Your boards'. The top navigation bar includes 'Workspaces', 'Recent', 'Starred', 'Templates', and 'Create'.

Post Development

The screenshot displays a Trello board for 'Post development' with a Kanban workflow. The board is organized into six columns: 'Main Tasks', 'To Do', 'Doing', 'Done', 'Pending for approval', and 'On hold'. The 'Main Tasks' column contains six cards, each with a title, a date range, a progress indicator, and assigned team members.

Card Title	Date Range	Progress	Assigned To
Testing and Quality Assurance	Mar 13 - Mar 21	1/2	AA, CR, NJ
Deployment and Launch	Mar 22 - Apr 10	0/5	NJ, AA, CR, NJ, L
Post-Launch Operations	Apr 11 - Apr 29	0/5	AA, CR, NJ, L
Maintenance and Support	Apr 11 - Apr 18	0/2	NJ, L
Growth and Scaling	Apr 21 - May 2	0/3	AA, CR, NJ, L
Project Closure	May 5 - May 14	0/4	AA, CR

The 'Done' column contains six cards, each with a title, a date range, and assigned team members.

Card Title	Date Range	Assigned To
Finalize All Project Documentation	Apr 20 - Apr 29	CR
Set Up a Maintenance Plan	Apr 11 - Apr 18	NJ
Establish a Support System to Assist Users	Apr 11 - Apr 18	L
Analyze Market Response	Apr 21 - May 1	AA
Identify Opportunities for Growth	Apr 22 - Apr 30	L
Implement Scaling Strategies	Apr 24 - May 2	NJ

The 'Project Closure' column contains two cards, each with a title, a date range, and assigned team members.

Card Title	Date Range	Assigned To
Officially Close the Project	May 5 - May 10	AA
Release Project Resources	May 6 - May 11	AA



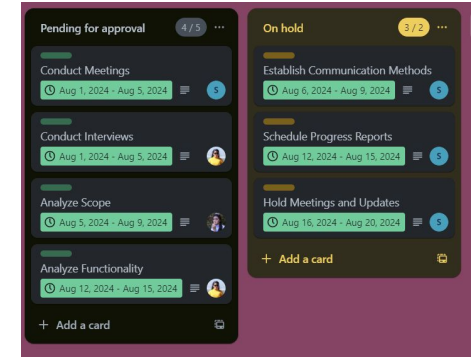
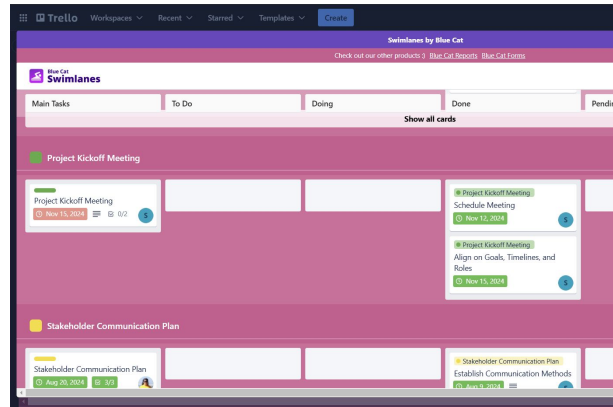
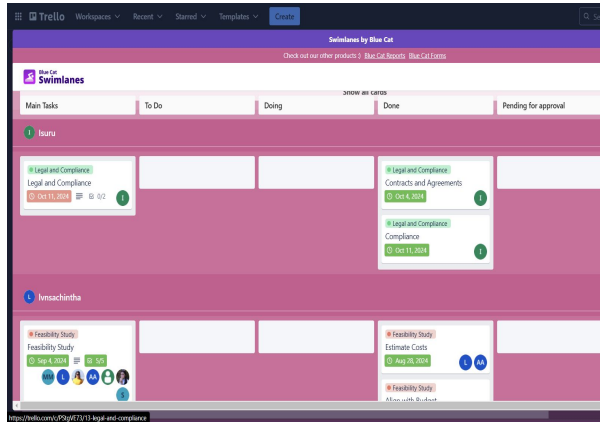
04

Power ups

Power ups in Trello

Trello Power-Ups are integrations and add-ons that enhance Trello boards by adding extra features like automation, analytics, time tracking, and third-party app connections.

- Add limits to lists (limit lists power up)
- Change view to display subtasks based on team member or main task (swimlanes powerup)





05

Challenges

Challenges in Pre Development Phase

Challenge	Solution
Defining Clear Requirements – Identifying and documenting essential features for AR, 3D modeling, and personalization.	Conduct stakeholder meetings, user surveys, and competitive analysis to define functional and non-functional requirements. Create user personas and journey maps.
Cost & Budget Constraints – Managing development expenses, especially for AR modeling.	Start with a Minimum Viable Product (MVP) focusing on core AR functionalities. Use open-source AR tools and secure retailer partnerships or investor funding.

Challenges in Development Phase

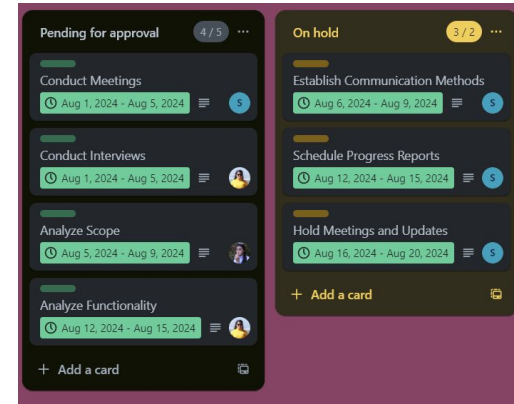
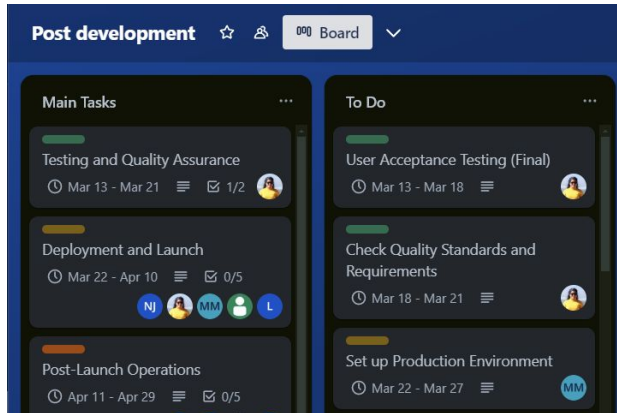
Challenge	Solution
3D Model Accuracy & Realism – Maintaining high-quality visuals with accurate product dimensions.	Work with professional 3D designers or use AI-assisted 3D scanning. Implement PBR (Physically Based Rendering) for realistic textures.
Personalization & AI Challenges – Ensuring recommendation accuracy and efficiency.	Implement machine learning algorithms (collaborative filtering, content-based filtering) and continuously refine based on user feedback and analytics.

Challenges in Post Development Phase

Challenge	Solution
User Adoption & Market Acceptance – Convincing users and retailers to use AR shopping.	Launch marketing campaigns, provide tutorial videos, and offer incentives for early adopters. Partner with influencers and brands for awareness.
Scalability Issues – Handling increased traffic and expanding product catalogs	Use cloud-based architectures (AWS Lambda, Kubernetes) for auto-scaling and load balancing. Implement caching strategies to improve speed.

Challenges in using Trello

Challenge	Solution
Not able to break down main tasks into subtasks in cards (Premium Feature)	Have separate Main Tasks list to clearly identify the main tasks and use colour coordination to distinguish it.
Not able to limit the number of cards in a list.	Add a separate power up to limit lists.





05

Conclusion

Conclusion

- The Augmented Reality Shopping App transforms online shopping by allowing customers to visualize products in their real-world environment, enhancing confidence in purchases.
- The project focused on user experience, technical excellence, and market relevance, ensuring a seamless and immersive shopping experience.
- The successful deployment highlights the power of AR in boosting customer engagement and offering retailers innovative ways to showcase products. With future advancements in AR, continuous updates will keep the app competitive, setting a new standard for digital shopping.



Thank You!