Code Evaluation Instructions

In order to evaluate candidate's programming ability and decision making process, we will work through reviewing the changes from a recent project. Below you will find the project definition and some mockups of the expected deliverables. You will also have a pr.html file with the code changes. Please review these materials and be prepared to discuss on the scheduled call. Consider the structure, style, security, and performance of the code and any ideas for improvements.

The purpose of this project is to create a new Prospect Timeline, combining our old Visit History and Activity Log timelines. We are also extending the timeline by including chatbot chats and parent activity. This project was undertaken in two steps. The first and larger portion was the prospect time. That was followed up with adding chatbot and parent activity to the timeline.

Project Definition

Overview

This timeline is built for admissions counselors who guide undergraduate prospects—students considering applying or already in the process.

Picture it as their trusty personal assistant, pulling together every moment a prospect connects with their school—whether they browse their website, open a marketing email, click an online ad, chat with an AI helper, or talk to a counselor directly — laying it all out in one clear, scrollable timeline.

The goal is to save them time, cut through the clutter, and show them exactly what each prospect is doing, so they can jump in with the perfect next step—like calling a student who just clicked "Apply Now" or emailing one who asked about scholarships.

For this second version, we're making a timeline that's a breeze to use, looks sharp, and keeps loading more as you scroll, with easy ways to sort through it all.

User Stories

These are real-life examples of what a counselor might want to do with the timeline. They are written as *"if this happens, then that should happen"* statements, showing how they fit into the counselor's work day.

- **See the Timeline**: If I'm a counselor who just logged in after a busy morning when I click on a prospect like "Sarah Miller" from my list, I want to see a full timeline of everything she's done—

like visiting our site last week or opening an email yesterday—all lined up from newest to oldest so I can catch up fast.

- **Keep Scrolling:** If I'm a counselor looking at Sarah's timeline and she's been interacting with us for months—maybe 150 events like visits, emails, and calls—when I scroll down past the first 50 things, I want more of her older actions to pop up automatically, like her first site visit from last fall, without me having to click a button or wait.
- **Filter By Category:** If I'm a counselor checking Sarah's timeline and want to focus on how she's reacting to our marketing when I pick "Emails" from a list of categories, I want the timeline to show only email stuff—like when we sent her "Campus Tour Info" or when she opened it—and hide everything else.
- **Filter By Type:** If I'm a counselor on Sarah's timeline and curious about how often she's clicking links we send, when I choose "Email Click" from a menu, I want to see just those moments—like when she clicked "Apply Now" last Tuesday—without seeing other email actions like sending or opening.
- **Filter By Date:** If I'm a counselor reviewing Sarah's activities and want to see what she did during the holidays, when I set a date range like "December 1, 2024, to January 15, 2025," I want the timeline to show only what happened then—like a site visit on December 20th—leaving out anything before or after.
- **Clear Filters**: If I've filtered Sarah's timeline to just emails from January, when I click *"Clear Filters,"* I want the whole timeline back—everything from site visits to calls—so I can see it all again.
- **Jump to an Event:** If my colleague emails me a link saying, "Check this out for Sarah," when I click that link, I want to go straight to that spot on her timeline and have it stand out so I don't have to hunt for it.
- **Read a Summary**: If I'm a counselor looking at Sarah's timeline and there's a "Chatbot Conversation" event, when I glance at it, I want to see a sort summary like "Asked about dorm costs" right there, so I don't have to dig deeper unless I want to.

User Flows

These are step-by-step stories showing how counselors will use the timeline in their daily work, with examples.

Flow 1: Viewing and Navigating the Timeline

1. I log into the tool with my university email and password on a Monday morning after a coffee break.
2. I see a list of all my prospects—maybe 50 students I'm helping.

3. I click Michael's name, and his timeline loads up, showing me his latest action: "Email Opened - Next Steps for Fall 2025" from this morning at 8:45 AM.
4. I scroll down to see what else he's done—there's "Website Visit" from last Friday and "Ad Click" from last Wednesday—and as I keep scrolling, older stuff like "First Visit" from October 2024 appears without me doing anything extra.
5. I click on "Website Visit" and a little window pops up saying he looked at the "Majors" page for 3 minutes on February 21st, with a tiny picture of that page I can enlarge.
6. Later, my boss sends me a link saying, "Look at this for Michael." I click it, and the timeline jumps to "Chatbot Conversation" from February 20th, highlighted in yellow, showing he asked about tuition.

Flow 2: Filtering Events

1. I pulled up Michael's timeline because I'm curious about his marketing interactions—it's got over 200 events since last summer.
2. I click a "Filter" button near the top, and a box slides out with options like "Emails," "Ads," and "Phone Calls."
3. I pick up "Ads" because I want to see how our online ads are working, and the timeline shrinks to just ad stuff—like "Ad Click" on February 18th when he visited from a Facebook ad.
4. I decide to focus even more, so I pick "Conversion" from another list, and now it's just one event: "Conversion - Form Submitted" after that ad click, showing he signed up for a tour.
5. I wonder what he did in January, so I set the dates to "January 1 to January 31, 2025," and hit "Apply"—the timeline goes blank because he didn't click ads then, which tells me he is new this month.
6. I click "Clear Filters," and bam, the full 200+ events are back, from emails to calls, so I can start over.

Flow 3: Reviewing Chatbot Interaction

1. I open Michael's timeline to see how he's been chatting with our AI helper, which answers basic questions for us.
2. I spot "Conversation with AI Recruiter" from February 20th at 3 PM, with a note saying "Asked about tour dates"—nice and short so I get the gist.
3. I click it, and a window pops up with the whole chat: "Michael: When's the next tour? AI: We have one on March 1st—want to sign up?" and Michael says "Yes." It's dated February 20th, 3:00-3:05 PM.
4. I notice another "Conversation" right after at 3:05 PM, so I click that too—it's the next 5 minutes, saying "Michael: What's the cost? AI: Tuition starts at $12,000/year—check scholarships here." This tells me he's serious and the AI split the chat into chunks.

Features and Functionality

These are the key things the timeline will do, explained with examples.

1: Timeline Display

- **What It Does**: Put every single thing a prospect does in one long list a counselor can scroll through, starting with the newest stuff at the top. Each event gets a little icon —like an envelope for emails or a phone for calls—and a special link a counselor can use to jump right to it.
- **Example**: For "Liam Johnson," I see "Text Delivered - Apply Reminder" from today at 11 AM at the top, then "Email Click - Tour Signup" from yesterday, and as I scroll, "First Visit" from six months ago loads up without me clicking anything. If I want to show my boss his tour signup, I copy its link—"Liam's Email Click"—and email it to her.
- **Keeping Track**: The tool quietly notes every time a counselor opens Liam's timeline—like "Counselor Jane viewed Liam's timeline, Feb 24, 2025, 10 AM"—and how far the counselor scrolls, like "Looked at 75 events." This would help figure out if counselors like to check lots of events or just the latest ones, so the timeline can get even better later—like loading more at once if they always scroll deep.

2: Filtering

- **What It Does**: Let a counselor zoom in on the parts of the timeline they care about—like only marketing stuff or only last week—so they don't get lost in too much info and can focus on what matters right now.
- **Example**: Liam's got 300 events, and I want to see how he likes our ads. I filter to "Ads," and it shows "Ad Click" and "Conversion" from this week—two events. I can add a date filter for "February," it's still just those two, telling me he's active now. I hit "Clear Filters," and all 300 are back if I change my mind.
- **Keeping Track**: Every time they use a filter—like picking "Ads" or setting "February"—the tool jots it down, like "Counselor Jane filtered Liam's timeline to Ads, Feb 24, 2025." It remembers what they filter most—like if they always pick "Emails"—so we can see what counselors care about and make those options quicker to find, maybe putting "Emails" right at the top next time.

3: Event Details

- **What It Does**: Gives them the whole story when I click an event—everything from what happened to when, plus extras like pictures or notes. For AI chats, they get a quick summary and can read the full talk if they want more.
- **Example**: I click "Chatbot Conversation" for Liam, and it says "Asked about majors, Feb 20, 2025,

11 AM" with a summary: "Wanted engineering info." I open it up and see "Liam: Any engineering programs? AI: Yes, here's a link!"—super helpful since I can call him about engineering today. If it's "Webpage Viewed," I see a picture of our "Majors" page he checked out.

- **Keeping Track**: The tool logs when they dig into details—like "Counselor Jane viewed Chatbot Conversation details for Liam, Feb 24, 2025"—and if they look at pictures or copy links, like "Copied Liam's event link." This shows us which events counselors check most—like chatbot chats or emails—so we can add more helpful bits there, like bigger pictures or extra notes.

Performance Requirements

This is what the tool promises to do fast and well, so counselors are never waiting around.

- **Quick Start**: When they open a timeline, the first 50 events—like Ava's latest emails and visits—show up in under 2 seconds, so they are not twiddling thumbs during a busy day.
- **Fast Details**: If they click an event, like "Conversation with AI," all the details pop up in half a second, so they can keep moving without a pause.
- **Speedy Sorting**: When they filter to see just "Phone Calls," it changes the timeline in less than a second—like flipping a switch.

Parent Activity Definition

User Persona(s): Admissions Counselor, Enrollment Manager, Admissions Director
User Problem/Goal: Counselors need a holistic view of all interactions related to a prospect, including those initiated by or involving parents/guardians or other key influencers, to understand the full context, avoid redundant communication, and personalize outreach more effectively. Currently, these interactions are separate or hidden, requiring extra effort to piece together the full story.
Feature Description: Enhance the existing Prospect Activity Timeline to optionally display activities associated with related contacts (like parents), starting with chatbot conversations. Provide a toggle mechanism to show/hide these activities, integrated with existing filter/search functionality.

Acceptance Criteria (AC):

1. **AC1: Default State:** By default, when viewing the Prospect Activity Timeline, only activities directly associated with the prospect are displayed.
2. **AC2: Hidden Indicator:** If activities from related contacts exist *and the toggle (AC3) is enabled but currently OFF*, a visual separator or indicator (e.g., a horizontal line labeled "Hidden Parent Activity" with an info icon (i)) must be present in the timeline chronologically where those activities would fall.
    - **Tooltip Text for Info Icon** (i)**:** "Activities by related contacts (e.g., parents, guardians) exist

for this prospect but are currently hidden. Use the 'Show Related Contacts' Activity' toggle in the header area to view them interspersed with the prospect's timeline."

3. **AC3: Toggle Control:** A toggle switch control (e.g., labeled "Show Related Contacts' Activity") must be added to the timeline's header area, logically grouped with existing controls like search and filters.
4. **AC4: Toggle Enabled State & Tooltip:** The toggle switch (AC3) must be rendered in an **enabled** state **only if** related contacts (matching defined types) exist AND they have recorded activities (matching current scope). Hovering over the enabled toggle's info icon (i) must display a tooltip explaining the filter reset behavior.
   - **Tooltip Text for Enabled Toggle Info Icon** (i)**:** "Shows/hides activities from related contacts like parents. Note: Toggling this switch will clear any currently applied timeline filters."
5. **AC5: Toggle Disabled State & Tooltip:** If no related contacts matching the defined types are linked OR if related contacts exist but have no recorded activities matching the current scope, the toggle switch (AC3) **must be rendered in a disabled state**. Hovering over the *disabled* toggle switch must display a tooltip explaining why.
   - **Tooltip Text for Disabled Toggle:** "No related contact activities available to display for this prospect."
6. **AC6: Toggle Default:** The toggle defaults to OFF *when enabled*.
7. **AC7: Toggle OFF Behavior:** When the toggle is enabled and OFF, only prospect activities are visible, and the hidden activity indicator (AC2) is displayed if applicable.
8. **AC8: Toggle ON Behavior (Success):** When the *enabled* toggle switch is moved from OFF to ON and data retrieval is successful:
   - Any currently active timeline filters **must be automatically cleared**.
   - The hidden activity indicator (AC2, if present) must disappear.
   - Activities identified as belonging to related contacts must appear interwoven chronologically with the prospect's activities.
   - The toggle switch must remain in the ON state.
9. **AC9: Toggle ON Behavior (Network/API Error):** If an error occurs while attempting to fetch related contact activities after the user toggles an *enabled* switch ON (e.g., network timeout, server error):
   - The toggle switch must revert to the **OFF** state.
   - A user-friendly, non-blocking error message (e.g., a toast notification) must be displayed (e.g., "Could not load related activities. Please try again later.").
   - The timeline must continue to display only the prospect's activities correctly (subject to any filters applied before the failed toggle attempt).
10. **AC10: Filtering While ON:** Users must be able to apply timeline filters (search, type filters, etc.)

after the toggle has been successfully switched ON. These filters will operate on the combined view of prospect and related contact activities displayed.

11. **AC11: Toggle OFF Behavior:** When the toggle switch is moved from the ON to the OFF state:
    - Any currently active timeline filters **must be automatically cleared**.
    - Related contact activities must be hidden from the timeline.
    - Only prospect activities are displayed.
    - The hidden activity indicator (AC2) reappears if relevant related activities exist.
    - The toggle switch state becomes OFF.
12. **AC12: Activity Attribution:** Displayed related contact activities must clearly indicate the source/actor (e.g., "Parent Chatbot Conversation," potentially including the specific parent's name) and use distinct iconography (per screenshot) to distinguish them from prospect activities.

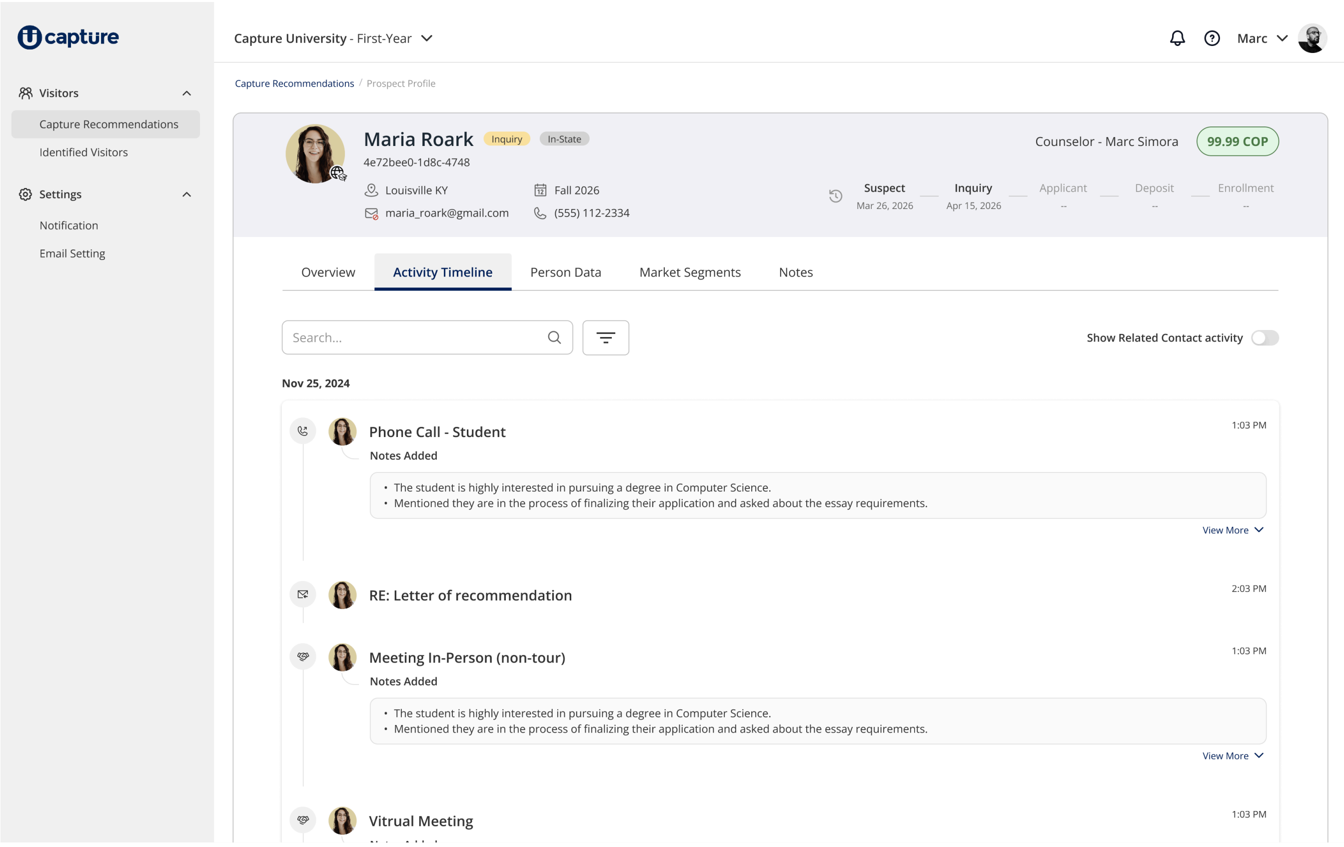
Non-Functional Requirements (NFRs):

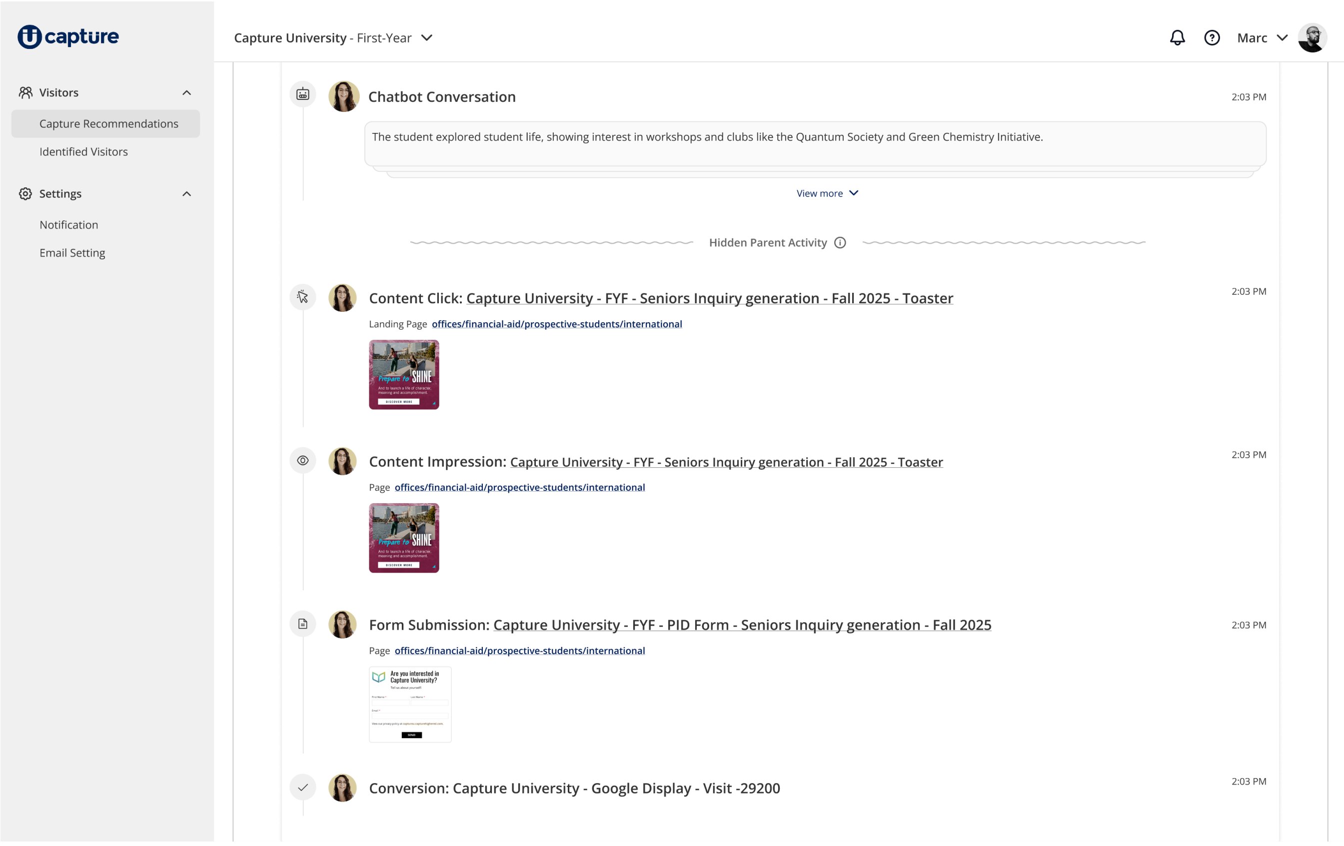
- **Performance:**
    - *Timeline Load Time:* Activity timeline should load within acceptable limits (< 3 seconds) including when related activities are fetched.
    - *Toggle Responsiveness:* Toggling related activities ON/OFF (including filter reset) should update the view quickly (< 2 seconds).
- **Accessibility (Targeting WCAG 2.1 AA where applicable):**
    - *Keyboard Navigation:* All interactive elements (toggle, tooltip trigger icon (i), links within activities) must be fully operable via keyboard (Tab, Shift+Tab, Space, Enter). No keyboard traps allowed.
    - *Focus Visibility:* A clear, visible focus indicator (meeting 3:1 contrast) must be present on focused interactive elements.
    - *Screen Reader Compatibility:* Toggle must use correct ARIA role (switch) and state (aria-checked). Labels and tooltips must be programmatically associated. Hidden indicator text and activity attribution must be announced clearly.
    - *Color Contrast:* Text and essential UI elements/states must meet minimum contrast ratios (4.5:1 for text, 3:1 for UI components/states).
    - *Use of Color:* Color alone must not convey information (e.g., toggle state must also have non-color indicator).
    - *Text Resizing:* Must remain usable when text size is zoomed to 200%.
    - *Target Size:* Interactive elements like the toggle should have adequate target size per WCAG guidelines (aiming for >= 24x24 CSS pixels).
- **Security & Privacy:** Access must adhere to user roles, permissions.
- **Data Integrity:** Ensure correct activities link to correct people; maintain chronological order.

Usage Tracking / Analytics Requirements: *(Events to be logged to PostHog)*

1. **Event:** Related_Activity_Toggled_ON
   - **Trigger:** User successfully switches the "Show Related Contacts' Activity" toggle from OFF to ON.
   - **Properties:** user_id/user, prospect_id/prospect, filters_were_active_before_reset (True/False), timestamp.
2. **Event:** Related_Activity_Toggled_OFF
   - **Trigger:** User switches the toggle from ON to OFF.
   - **Properties:** user_id/user, prospect_id/prospect, duration_on_state_ms (Optional: Time since toggled ON), filters_were_active_before_reset (True/False), timestamp.

Mockups





Pull Request Diff

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#work/capture