CS 411
Team: BEAT

Timeline

February

OVERVIEW

The goal of this project is to develop a web application that enables users to explore historical and academic events dynamically through an interactive timeline. Users can search for any topic of their interest such as “mathematics” or “computer science,” and generate their own customized timeline to showcase the major events of the field. From there, users can additionally refine their query by searching and filtering accordingly. Additionally, the platform allows users to create and personalize their own timelines based on their topics of interest or their personal lives.

This tool serves as a research or educational aid and can provide knowledge about how specific fields have evolved over time and even how different topics intersect. The system will aggregate various data sources for a well-rounded timeline.

GOALS

1. Warehouse the database on GCP to host the events information and achieve optimal speed.
2. Complete a website that allows users to filter the categories, year range, and search for the events of their choice.
3. Complete a website that allows users to create their own events and share it on other social media platforms.

Success Criteria

1. Complete CS411 4 checkpoints on time with 90% of points or more.
2. Achieved approval from ⅘ people that tested our website.
3. Achieved 95% of points on final demo and report.

SPECIFICATIONS

This application provides users with a powerful tool to explore and visualize historical and academic events based on specific topics. The core problem it addresses is the lack of a dynamic platform for viewing topic-based event timelines.
By allowing users to create their own customized timelines and refine searches, this application serves students, researchers, and history enthusiasts who seek to understand the relation of various fields. The ability to add personal events also makes it a tool for tracking personal milestones and exploring friends' life stories.

1. View Events: Users can explore categorized events (e.g., historical, academic, personal) and toggle them on/off. They can filter events based on timeframes and expand event details.
2. Search & Filter: Users can search for events using keywords and refine timelines by event categories or timeframes.
3. Create Personal Events: Logged-in users can add, edit, and delete personal events with descriptions and images.
4. Shared Timelines: Users can create and share timelines with friends, combining life events into a single view.
5. Snapshot & Export: Users can capture and share timeline screenshots.

Data source

We currently categorized our events into two types, general historical events and scientific research events. These APIs will be used to get the authors, title, DOI, and date of publication of research articles.

1. Semantic Scholar Datasets API and/or
2. PubMed API: Entrez Programming Utilities (E-utilities).
3. GDELT
4. BDpedia.

Scope

This version will not include add-friend functionality, and does not put in consideration of multi user transactions.

MILESTONES

Stage 1: Planning & Detailed Project Description

- Define project scope and logistic
- Define website function
- Create UI mock-up

Stage 2: Conceptual and Logistic Database Design

- Define database schema and check for normalization
- Create UML diagram

Stage 3: Database Implementation

- Set up GCP database
- Create tables, dependencies, import data, and indexing
- Define main SQL function needed for the website

Stage 4-1: Set up Full Stack Development Environment

- Set up React.js as frontend, and Javascript as backend
- Connect servers to GCP database
- Mock website for displaying the categories in the table, and show events of selected categories

Stage 4-2: Feature Completion

- Complete backend
- Complete frontend

Stage 4-3: Data and Demo Prep

- Test website and verify data correctness
- Prepare for demo flow

Stage 4-4: Wrap Up

- Complete video demo and live demo script
- Complete video demo
- Complete final report

- Complete github ReadMe, and tag

Dependency

Database schema and normalization depend on database searching.
GCP development depends on completion of the database schema and normalization.
The website development depends on the completion of a rough GCP db warehousing.
Front-end rendering of event categories requires the availability of mock data and working API endpoints.
Demo and testing rely on all features being merged and functional by April 20.

Resource Summary

	Amount	Owner
People	4 members/ 3 months/ 6 hours per week	Emerald
GCP resource	50$/ 3 months	Beau

Key Stakeholder

	Interest	Influence	Name
TA	High, approval of each stage	High	Chenghao Mo
Head TA	High, final grading	Medium	Kevin Pei
Project Manager	Manages team, schedule, and deliverables	High	Emerald
UI Designer	UI design, stylistic choices	Medium	Archie, Emerald
Data Engineer	Database warehousing, importing data, data processing	High	Beau, Taisia
Frontend Engineer	Implement UI	High	Archie
Backend Engineer	Implements core features	High	Emerald, Taisia, Beau

Testing	Test final product, check demo flow	Low	Beau

Risk Management

Scope Creep – Uncontrolled changes to scope, i.e. functionality changes, may delay schedule.

> *Mitigation:* Set clear requirements early; require change approval, rather discard function rather than add new function in short notice.

Team Bandwidth – Developers are also working on other courses and projects.

> *Mitigation:* Check in early with a member's final week exams/project workload.

Risk Owner: Emerald Chang (PM)

Monitoring Plan: Risks will be reviewed during weekly status meetings and updated as needed.

Communication Plan

	Purpose	Frequency	Method	Owner
TA	Milestone check in	Bi-weekly	Campuswire	Archie
Head TA	Ask for project topic approval	One-time	Canvas	Taisian
Team member	Exchange to-do and communication project details	Daily	Discord	Emerald
Team member	Updates progress and discuss changes	Tuesday, Thursday, Sunday	In person or on Zoom	Emerald

Approved By

Chenghao Mo - TA - 03/11/2025 - Campuswire
Head TA - 3/15/2025 - Canvas