1. Company Information

- **Company Name:** *UnVRap*
- **Primary Contact Person:** *Navun Razdan , Founder of UnVRap*
- **Email Address:** *navun.razdanmyyorku@gmail.com*
- **Website:** *https://unvrap.godaddysites.com/*
- **Location / Time Zone: Ontario, EST**

2. Team Structure & Required Skills

a. Team composition
Given that teams of 8-10 will be formed, we can structure for greater specialization and robustness in development. The team will operate using a hybrid agile/scrum framework suited for an academic timeline. Roles can be more defined, Scrum Master / Project Coordinator (1 student): Facilitates weekly stand-ups and sprint planning, manages the GitHub Project board, and removes blockers. This is a dedicated role for continuity.

- Product Owner Liaison (1 student): Works closely with me (the sponsor) to refine user stories, manage the product backlog, and ensure the team understands the clinical context and HIPAA implications. This role is crucial for requirements
- Frontend Sub-Team (3 students): Focuses on building the clinician's user-friendly interface with a modern framework. Responsible for UX, responsiveness, and consuming backend APIs.
- Backend & API Sub-Team (3 students): Architects and builds the secure server, database, and RESTful API. Their core responsibility is software architecture design for data integrity, security, and performance.
- DevOps & Integration Specialist (1 student): Owns the continuous integration and testing pipelines, repository management, deployment scripting, and the integration of the VR data simulation module.
- Collaboration expectations: Bi-weekly sprint reviews with me, peer code reviews, and the use of branching strategies in Git. The team will be expected to produce a design portfolio of their architectural decisions.

b. Required Baseline Skills

List the *foundational* skills students must already have to participate successfully.
CS 472 students are **senior CS undergraduates** with general programming experience. They are **not industry experts**, but they are capable of learning new tools and technologies used in your project.

- General programming experience in one or more languages (e.g., JavaScript, Python, Java).
- Basic understanding of software development practices (SDLC, basic design patterns).
- Familiarity with Git/GitHub for collaborative version control.
- A willingness and ability to learn complex new domains (healthcare compliance, new frameworks).

c. Skills to Be Developed During the Project

List skills the students will gain while working with you (frameworks, tools, domain knowledge, engineering practices, etc.).

- **Frameworks/Tools**: Full-stack development with a modern tech stack (e.g., React + Node.js + PostgreSQL), Docker containerization, and CI/CD tooling (GitHub Actions/Jenkins).
- **Domain Knowledge**: Translating HIPAA security and privacy rules into technical specifications—a highly valuable skill.
- **Engineering Practices**: Software architecture design for compliance, implementing OAuth2/JWT for authentication, building robust APIs, creating a comprehensive design portfolio, and establishing continuous integration and testing pipelines.
- **Professional Skills**: Requirements gathering with a stakeholder, agile teamwork, and preparing a high-stakes final presentation.

3. Project Title & Acronym

Project Title*:* UnWRAP Connect: A HIPAA-Compliant Clinical Management System for Immersive Therapy
Acronym (for GitHub repository)*:* UNWRAP-CMS

4. Project Overview & Problem Statement

Provide a clear description including:

- **The Problem**: Clinical psychologists adopting VR therapy face a fragmented workflow. Patient medical records, session notes, and rich VR biometric data exist in separate silos, leading to inefficiency, hindered treatment analysis, and
- **Background/Context**: VR is proven for treating phobias, but its clinical utility is reduced without integrated data management. Therapists cannot easily correlate a patient's in-VR exposure metrics with their subjective progress notes.
- **Target Users**: Clinical psychologists (primary) administering treatment. Practice administrators (secondary) concerned with compliance and billing.
- **Goals and Expected Impact**: The primary goal is to develop a prototype that seamlessly integrates VR therapy sessions with patient data management. The expected impact is a demonstrable, secure system that streamlines the clinician's

5. Solution Overview & Core System Components

Describe the main system components, modules, or functionalities required.

Core MVP Deliverables (Must-Have)

- A deployed, functional web application with user authentication (RBAC: Clinician role).
- A secure PostgreSQL database modeling Patients, Clinicians, and Sessions.

- A Clinical Dashboard allowing a clinician to view a patient list and basic patient profile.
- A Unified Session Journal where a clinician can create a session record and add clinical notes.
- A VR Data Bridge (Simulation) that ingests mock JSON data and links it to a session.
- A basic Audit Console showing user login logs to demonstrate audit principles.
- A compliance report mapping system features (encryption, access control, audit logs) to specific HIPAA Security Rule safeguards.
- A CI/CD pipeline (GitHub Actions) running automated tests on every commit.
- Basic technical documentation (README, setup guide) in the GitHub repository.

Stretch Goals (Optional)

- Advanced RBAC with a "Practice Admin" role for managing clinician accounts.
- Enhanced VR Data Visualization using a charting library (e.g., Chart.js) for anxiety metrics.
- Data Export feature allowing clinicians to export session history as PDF.
- Automated Security Scanning using SAST tools (e.g., Snyk, Bandit).
- Comprehensive Design Portfolio with architectural rationale, trade-offs, and a threat model.

6. Technical Considerations

Required or Preferred Tech Stack: We recommend a common, robust stack:

- **Frontend**: React with TypeScript for type safety.
- **Backend**: Node.js/Express or Python/FastAPI for building a secure API.
- **Database**: PostgreSQL with strict schema design.
- **Infrastructure**: Docker for containerization, with deployment to a cloud provider's free tier (AWS, GCP).
- **APIs, SDKs, Datasets, or Tools**: The project will create its own API. A mock VR "SDK" (a simple script generating JSON files) will be provided to simulate data feed. No real patient data will be used.
- **Constraints or Limitations**: This is a prototype development for demonstration. It will implement key HIPAA security controls but will not be certified for production PHI.
- **Integration Requirements**: The system architecture must be document with clear APIs for future integration with actual VR applications.
- **Quality/Testing/CI Considerations**: Continuous integration and testing pipelines are a required deliverable. This includes automated unit/integration tests, code linting, and containerized builds via GitHub Actions.
- **Security/Privacy Needs**: Non-negotiable. Must include end-to-end encryption (TLS), role-based access control (RBAC), hashed passwords, input sanitization, and detailed audit logs.

7. Innovation & Competitive Advantage

The innovation is a clinician-centric platform that unifies the therapeutic data lifecycle: from VR exposure execution to clinical note-taking and outcome analysis, all within a single, compliance-by-design environment. The competitive advantage is focusing not just on the VR

experience, but on the *clinician's operational workflow*, thereby increasing adoption and treatment efficacy for phobic patients.

8. Proposed Implementation Timeline (Aligned to 13-Week Program)

- **Weeks 1-3 (Jan 26 - Feb 13):** Foundation & Discovery. Team onboarding, finalize tech stack, in-depth requirements gathering, HIPAA workshop, and complete UI/UX wireframes.
- **Weeks 4-6 (Feb 16 - Mar 6)**: Core System Sprint. Implement auth, core database, backend API, and basic frontend dashboard. Establish initial CI pipeline.
- **Weeks 8-11 (Mar 13 - Apr 8)**: Feature & Integration Sprint. Build the VR data simulation module, session journal, and audit console. Integrate frontend and backend. Testing pipelines expanded.
- **Weeks 12-13 (Apr 11 - Apr 22)**: 1**) Security, Polish & Documentation**. Implement security hardening, conduct penetration testing simulations, write user/technical documentation, and compile the comprehensive design portfolio. 2) **Final Preparation.** User acceptance testing, bug fixes, prepare final presentation, and deploy demo instance for showcase.

8. Deployment & Support Expectations

- **Hosting or Infrastructure**: A deployed, live demo on a cloud platform (e.g., Heroku, AWS Elastic Beanstalk) is required for the final presentation.
- **Access Credentials or Resources**: I will provide detailed user stories, wireframes, a mock data generator, and serve as the subject matter expert for clinical/ compliance queries.
- **Documentation or Training Expectations**: Deliverables must include a comprehensive design portfolio (architecture decisions, trade-off analyses) and full technical documentation (API specs, setup guide) in the GitHub repository.

9. Confidentiality & Intellectual Property

- **Confidentiality**: Students may sign a simple NDA covering specific business logic I disclose.
- **Intellectual Property**: The project IP will be shared between the university and my company. Students retain the right to include the work in their public portfolios and on resumes.
- **Portfolio Usage**: Encouraged. This project is ideal for a design portfolio showcasing full-stack development and security-conscious design.
- **Disclosure**: The project can be described publicly as a senior capstone collaboration.

10. Proposed Success Metrics

- **Quantitative:** 1) 95%+ code coverage on critical backend services. 2) All user stories from the approved backlog are "Done." 3) System achieves zero critical/open security findings from a manual review checklist.
- **Qualitative:** 1) The final presentation and demo convincingly show a seamless integration of VR and clinical data. 2) The design portfolio demonstrates

thoughtful software architecture design considering scalability and compliance. 3) The prototype is intuitive for a first-time clinician user (as tested by the professor/peers).

11. Mentorship & Communication Plan

- **Expected Meeting Cadence**: Weekly meetings (1 hour via Zoom) for sprint reviews and planning. I will also be available for a weekly 30-minute "office hours" for sub-team questions.
- **Communication Platforms**: Slack (primary async), GitHub (code, issues, projects), Zoom (sync meetings).
- **Response Time Expectations**: I will respond to Slack/email within 12 hours on weekdays.
- **Mentorship**: I will be the primary industry mentor. I expect the course professor/TAs to provide complementary technical mentorship on best practices and grading. The Product Owner Liaison on the team will be my main point of contact.