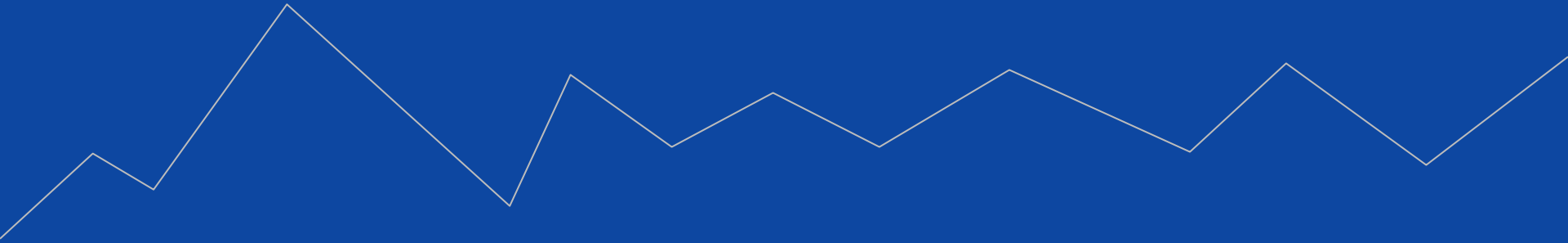
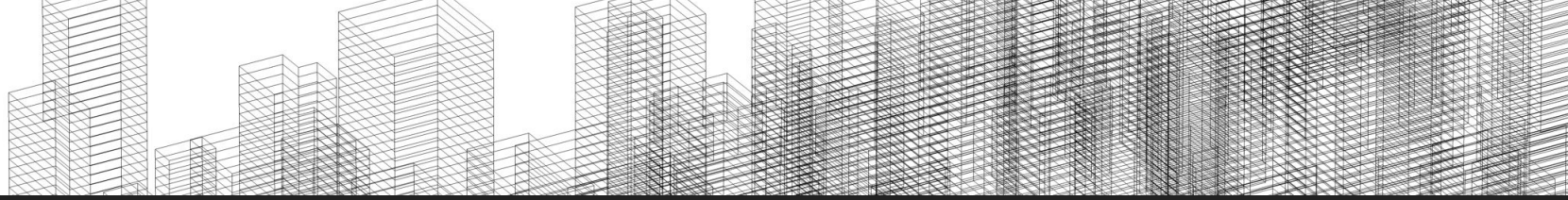


Workout Movement Tracker App

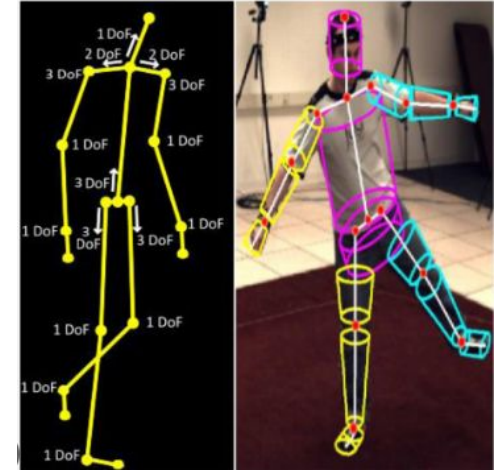
Shreya Boyapati, Ayesha Quadri Syeda, Dat Huynh, Sarthak Patipati

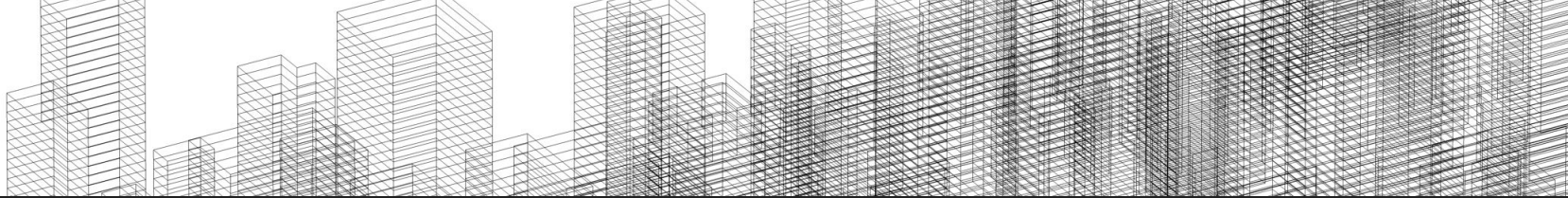




Project Description

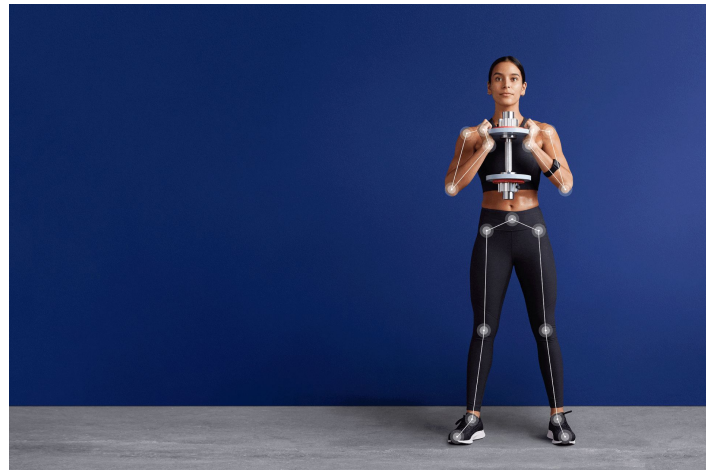
- A personal trainer
- Generates personalized recommendations
- Checks movement and positioning of the user
- Live feedback to correct the users' form

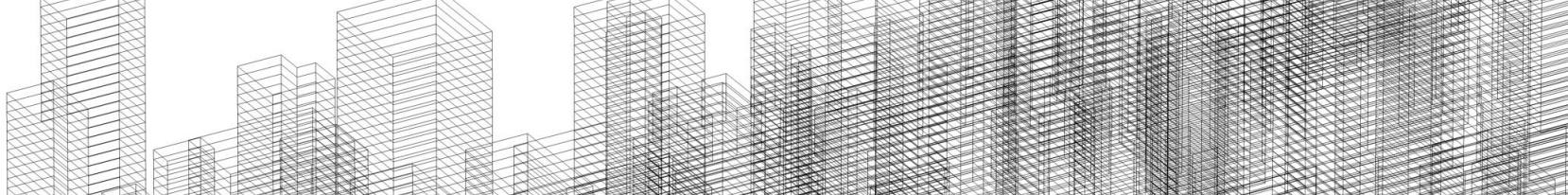




Project Requirements

- Use cases:
 - Creating and updating a user profile with fitness level and goals
 - Generating personalized recommendations
 - Checking form and receiving feedback
- Respond within 10 seconds with appropriate recommendations
- Track user's movement in real-time with at least 95% accuracy
- Intuitive and easy to use
- Clean, attractive design similar to a personal trainer's office
- Maintain offline functionality
- Reliability, legal, cultural...





Test Plan

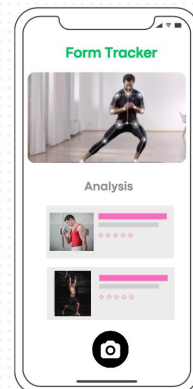
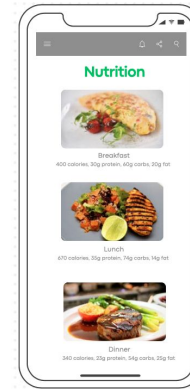
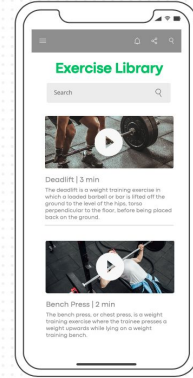
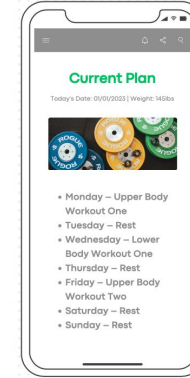
- **User Experience & Personalization**
 - ◆ User information, personalized recommendations, form correction
- **Performance & Scalability**
 - ◆ Response time, real-time tracking, capacity, adaptability
- **Security & Data Integrity**
 - ◆ Data dependability, offline mode, privacy
- **Usability & Aesthetics**
 - ◆ Learnability, visual communication, app compatibility, non-discrimination
- **Continuous Improvement**
 - ◆ Updates, maintenance, accessibility, standards compliance

	Requirement 1	Requirement 2	Requirement 3	Requirement 4	Requirement 5	Requirement 6	Requirement 7	Requirement 8	Requirement 9	Requirement 10	Requirement 11
Test 1	x										
Test 2	x										
Test 3	x										
Test 4	x										
Test 5		x									
Test 6			x								
Test 7			x								
Test 8			x								
Test 9			x								
Test 10				x							
Test 11				x							
Test 12				x							
Test 13				x							
Test 14					x						
Test 15					x						
Test 16					x						
Test 17					x						
Test 18					x						
Test 19						x					
Test 20						x					
Test 21						x					
Test 22						x					
Test 23						x					
Test 24							x				
Test 25							x				
Test 26							x				
Test 27							x				
Test 28							x				
Test 29							x				
Test 30							x				
Test 31								x			
Test 32								x			
Test 33									x		
Test 34									x		
Test 35									x		
Test 36									x		
Test 37										x	
Test 38										x	
Test 39											x
Test 40											x

Requirements-Acceptance Tests Correspondence

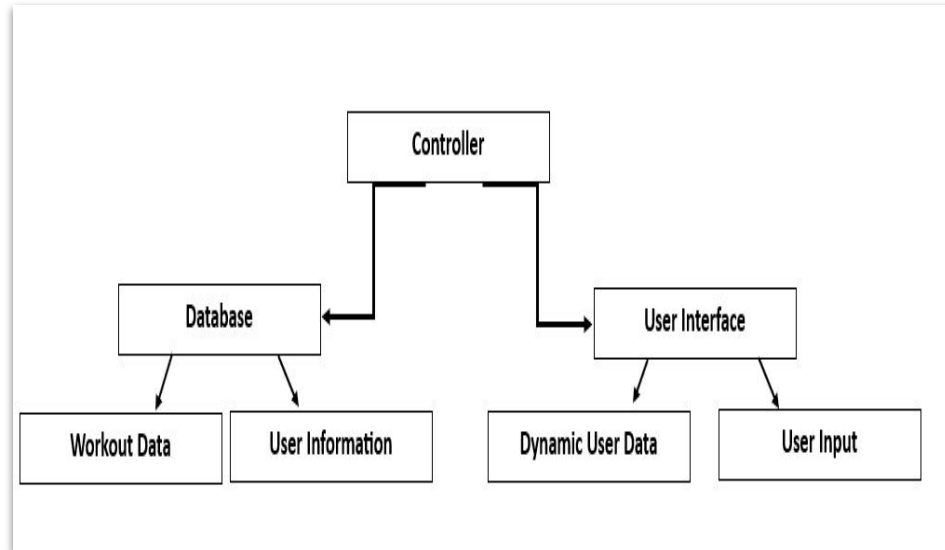
Design Goals

- The application should look **aesthetic to the eye**
- It should be able to **please people of any generation**
- It shouldn't be focused on a **particular world culture**
- It should be able to **enforce authority**
- It should look **professional**

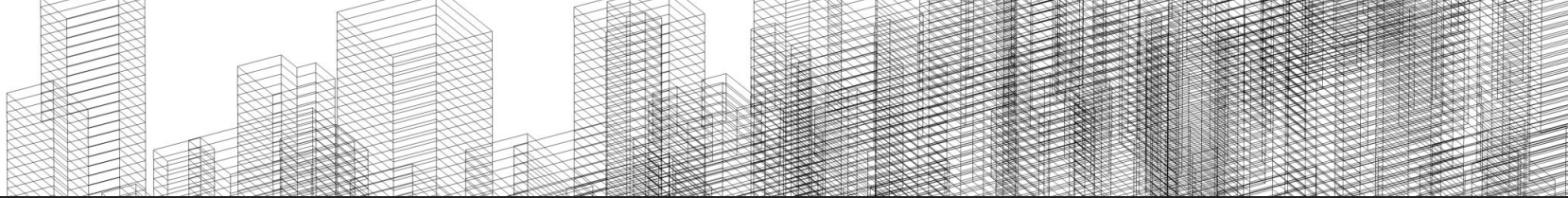


System Design

- Model View Controller design recommended
- **Model:** Handle information from the database
- **View:** Handle the creation of different user interaction pages
- **Controller:** Handle the user interaction and be an interface between the Model and View subsystems

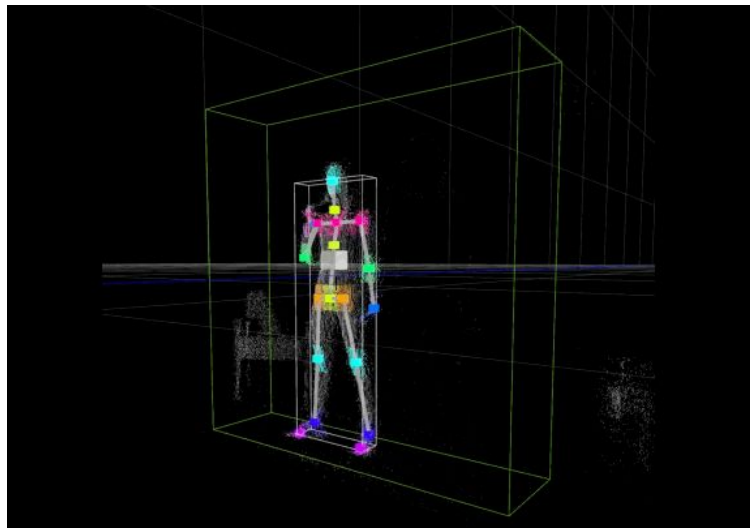


Software Mapping

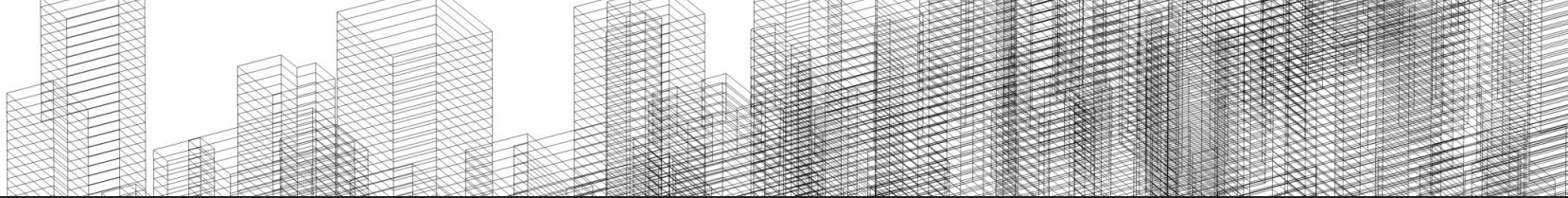


Design Considerations

- **Controller interacts with database & UI**
 - Retrieves and displays information based on commands
- **Real-time tracking & form analysis**
 - Computer Vision/Machine Learning to interpret camera data
- **Security proxy for access control**
 - Separate class that interacts with controller subsystem
 - Requires password to protect from unauthorized sources

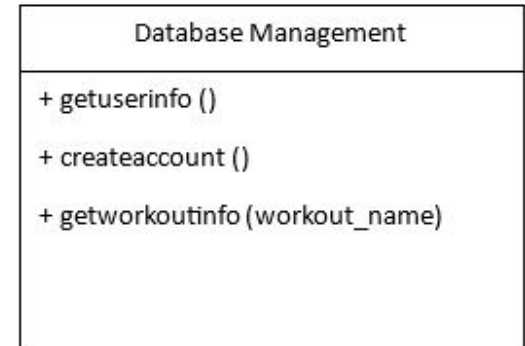
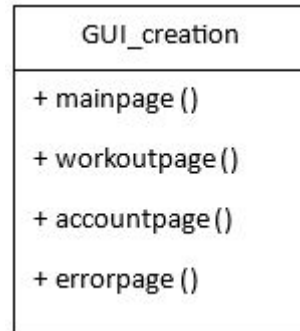
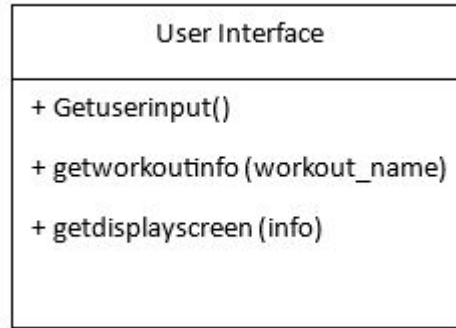


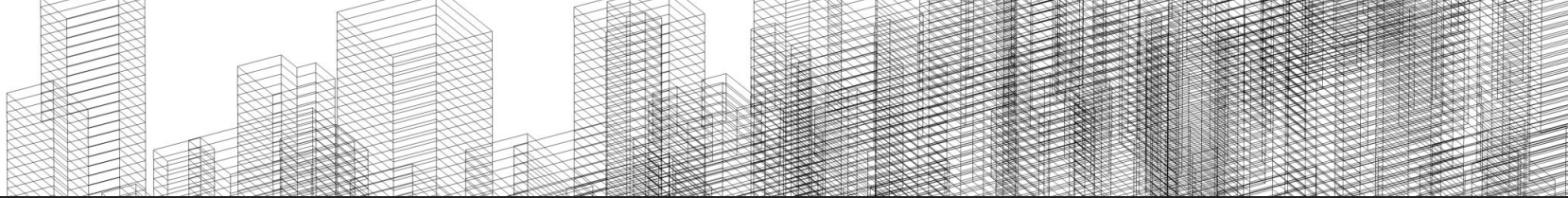
Computer Vision Tracking



Object Design

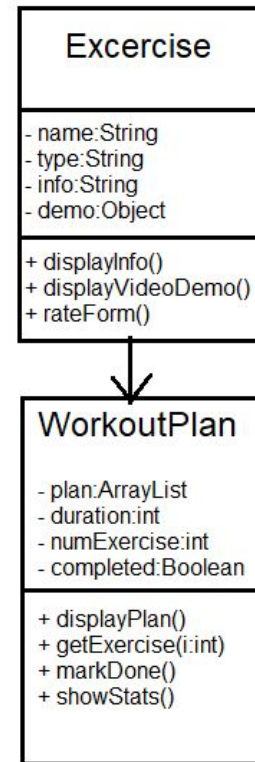
- At least three different classes can be utilized in the design
- One for **User Interface** design
- One for **GUI creation**
- One for **Database Management**





Object Design

- Two classes:
- **Exercise**
 - Displays exercises that are retrieved from a database
 - Attributes: name, type, info, demo
 - Also displays demo video and rates form
- **Workout Plan**
 - Displays workout plans based on user profile
 - Attributes: plan, duration, no. of exercises, completion
 - Also retrieves exercises, marks done, and displays stats



A person with a red backpack is walking away from the camera on a suspension bridge that spans a deep, dense forest. The bridge is made of metal cables and a mesh floor. The forest is lush with green trees, and in the background, misty mountains are visible under a soft, hazy sky.

Thank You

—

Questions?