SCHOOL OF COMPUTER SCIENCE | UPES

ATHLEAD

YOUR TOURNAMENT GUIDE

PROBLEM STATEMENT

THIS PROJECT IS AIMED TO DEVELOP A PLATFORM FOR MANAGING EVENTS LIKE MATCH SCHEDULING, VENUE MANAGEMENT, AND SPECTATOR LOGISTICS TO ENSURE SMOOTH AND EFFICIENT TOURNAMENT OPERATIONS.

ABSTRACT

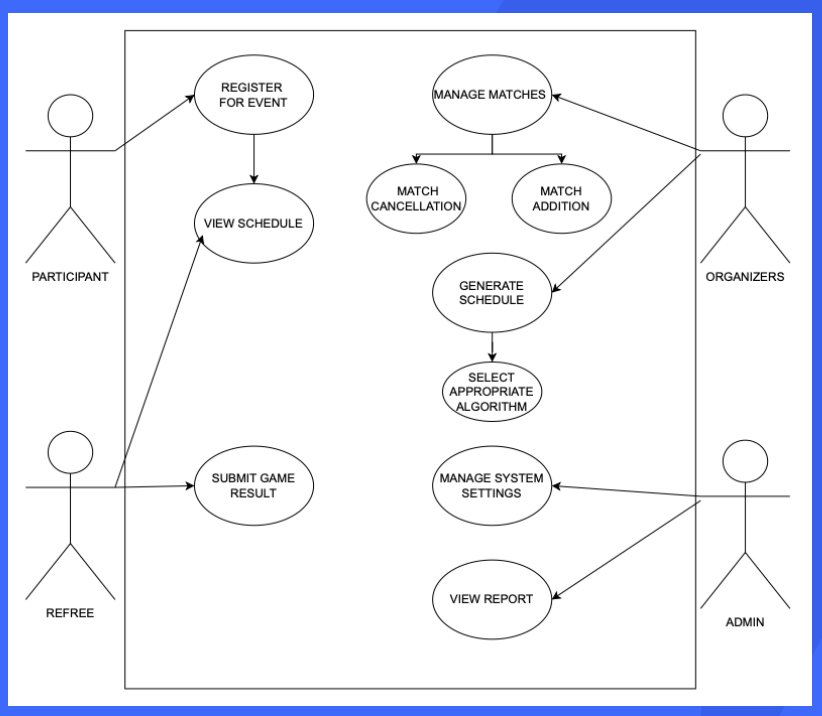
THIS PROJECT FOCUSES ON DEVELOPING "ATHLEAD," A FEATURE-RICH APPLICATION DESIGNED TO STREAMLINE THE ORGANIZATION OF COLLEGE ATHLETIC EVENTS. THE SYSTEM AUTOMATES CRITICAL TASKS SUCH AS STUDENT REGISTRATON, FIXTURE CREATION, AND SCHEDULING. ATHLEAD OFFERS A USER-FRIENDLY INTERFACE THAT SIMPLIFIES PARTICIPANT REGISTRATION AND PROVIDES EASY ACCESS TO EVENT DETAILS AND UPDATES.

OBJECTIVES

1. **STREAMLINED EVENT MANAGEMENT:** ATHLEAD OPTIMIZES FIXTURE CREATION, SCHEDULING, AND RESOURCE ALLOCATION WITH ADVANCED ALGORITHMS.
2. **ROBUST DATA HANDLING:** IT USES EFFICIENT DATA STRUCTURES AND DATABASES TO MAINTAIN ACCURATE EVENT RECORDS.
3. **ENHANCED USER EXPERIENCE:** ATHLEAD ENSURES A SMOOTH EXPERIENCE FOR PARTICIPANTS, ORGANIZERS, AND SPECTATORS BY RESOLVING SCHEDULING AND RESOURCE ISSUES.
4. **COMPREHENSIVE SOLUTION:** IT COVERS COURT ALLOCATION, SPECTATOR MANAGEMENT, AND OPTIMIZED SCHEDULING FOR SEAMLESS ATHLETIC EVENT ORGANIZATION.

- MAKES MATCHES FIXTURES
- SCHEDULE MATCHES
- COURT/REFREE ALLOCATION
- KEEPS RECORD OF POINTS TABLE

DATA FLOW DIAGRAM



DATA STRUCTURES

- PCB
- QUEUES
- CIRCULAR LINKED LIST
- PRIORITY QUEUES

ALGORITHMS

FIRST-COME, FIRST-SERVED (FCFS): FCFS IS THE SIMPLEST SCHEDULING ALGORITHM WHERE PROCESSES ARE HANDLED IN THE ORDER THEY ARRIVE. THIS NON-PREEMPTIVE ALGORITHM IS STRAIGHTFORWARD BUT CAN LEAD TO INEFFICIENCIES.

ROUND ROBIN (RR): RR ASSIGNS A FIXED TIME SLICE, OR QUANTUM, TO EACH PROCESS AND CYCLES THROUGH THEM, ENSURING THAT NO PROCESS IS STARVED. THIS ALGORITHM IS PARTICULARLY SUITED TO TIME-SHARING SYSTEMS.

MULTILEVEL FEEDBACK QUEUE SCHEDULING: SIMILAR TO MULTILEVEL QUEUE SCHEDULING BUT WITH DYNAMIC ADJUSTMENT, PROCESSES CAN MOVE BETWEEN QUEUES BASED ON THEIR BEHAVIOR (E.G., CPU BURST TIMES).

TEAM

VAISHNAVI DUBEY
RISHI RAJ JAIN
PARTH SONI
CHITRANSH SONI

METHODOLOGY

REQUIREMENT GATHERING AND ANALYSIS: COLLABORATE WITH STAKEHOLDERS TO IDENTIFY NEEDS, INCLUDING SCHEDULING, FIXTURE GENERATION, GROUND ALLOCATION, AND RECORD MANAGEMENT.

SYSTEM DESIGN AND ARCHITECTURE: DEVELOP MODULAR, SCALABLE ARCHITECTURE WITH CLASS DIAGRAMS, ERDS, AND DFDS.

MODULE DEVELOPMENT: BUILD MODULES FOR PARTICIPANT MANAGEMENT, MATCH SCHEDULING (ROUND ROBIN, FCFS), AND RESOURCE ALLOCATION USING DATA STRUCTURES LIKE PRIORITY QUEUES TO OPTIMIZE COURT AND GROUND USAGE.

SYNOPSIS

REFERENCES
1. KROTEE, M., & BUCHER, C. (2007). MANAGEMENT OF PHYSICAL EDUCATION AND SPORT. MCGRAW-HILL.
2. ALI, M., & PARMAR, J. (2022). "AUTOMATED FIXTURE SCHEDULING IN SPORTS TOURNAMENTS,,. INTERNATIONAL JOURNAL OF COMPUTER APPLICATIONS.
3. SMITH, J., & GREEN, T. (2019). "TECHNOLOGICAL INNOVATIONS IN SPORTS EVENT MANAGEMENT". JOURNAL OF SPORTS TECHNOLOGY.
4. RAM, S., & MISHRA, P. (2020). "COMPARATIVE STUDY OF DIGITAL SOLUTIONS FOR UNIVERSITY SPORTS MANAGEMENT". INTERNATIONAL JOURNAL OF SPORTS SCIENCE.