PO ATTAINMENT

Program Outcomes (POs):		Task Performed	Attainment				
			Excellent 5	Very Good 4	Good 3	Fair 2	Poor 1
PO1	Engineering knowledge	Applied the knowledge of Computer Networks, Programming, Cloud Technologies and Software Engineering.	✓				
PO2	Problem analysis	1. Literature Survey was done on existing works related to cloud gaming and multiplayer games. 2. The objectives of the project were set. 3. Knowledge of Computer Networks, Programming, Cloud Technologies and Software Engineering were found to be useful in implementing the project		✓			
PO3	Design/development of solutions	1. Solution was developed for the problem statement: "An online scalable low latency multiplayer game using docker". 2. We containerized the game server to reduce latency and to achieve scalability.		✓			
PO4	Conduct investigations of complex problems	1. Requirements for the project was gathered through Literature Survey. 2. Analysed various available frameworks and technologies relevant to the project. 3. We studied various existing multiplayer games and considered various features to add to the project			✓		

PO	Description	Details	1	2	3	4	5
PO5	Modern tool usage	Visual studio code, Docker Desktop, BurpSuite, NodeJS, MongoDB, Express	✓				
PO6	The engineer and society	Through this project we have developed a Proof of Concept for scalable, low latency multiplayer games, which can be enhanced by the gaming industry for creating a better gaming experience for users across the globe.			✓		
PO7	Environment and sustainability	We have considered a cloud native architecture for the project making it highly available and sustainable.			✓		
PO8	Ethics	1. References are quoted. 2. We purchased game assets and required software licenses legally. 3. Report is prepared by students and plagiarism check is made with Turnitin software.	✓				
PO9	Individual and team work	1. Each student took up the responsibility of developing different modules of the project. 2. The report content was contributed by each of the team members. 3. Integration of the modules was done as a team. 4. Incorporating the suggested changes was done as a team. 5. Presentations and project demos were given as a team.		✓			
PO10	Communication	1. Phase-wise presentation and Demo of progress of the project were shown to the panel and industry experts. 2. Regular interaction with Guide and Panel members to incorporate the suggestions given during evaluations 3. Answering queries during presentations and demos.	✓				

PO11	Project management and finance	1. Project Scheduling using Gantt Chart. 2. Maintaining Project Diary. 3. Budgeting and cost estimation. 4. Estimating man hour Requirements.		✓			
PO12	Life-long learning	1. Working of online multiplayer games. 2. Making the existing and upcoming games scalable. 3. Making use of cloud technologies where time and latency can be optimized.		✓			