

**MEMBER 1:-**

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**MEMBER 2:-**

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**Roll No: 19i-2016**

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**CONTRIBUTION MEMBER WISE:-**

**Overall structure of code, Making Threads and using semaphores and mutex by member 2.**

**Grid Making using SFML, Movement of tokens on board and all the necessary Checks of movement by Member 1.**

**OPERATING SYSTEMS (CS220) Project**

**Pseudo Code and Illustrations**:-

**//Pseudo CODE PHASE 1:-**

//Three Functions are made:-

//Main Threads calls the Master thread

//Master Threads Makes the player Threads and cancel these threads also upon winning condition and check if the user have any six in 20 turns or have killed any token or not in case of winning.

//In Player thread the dice is rolled for the respective player by using rand function and then the movement is done.

//In Player Thread the check thread is called to check the collisions (which player was the hitter and which player token got killed).

//The functions and threads in the project are:-

Movement Function:

//It Just Move the token by incrementing their x and y axis and then again call the Draw function with different x and y axis and make grid using the SFML library.

Player Thread:

//In player thread basically two things are done which is dice rolling and then the movement functionis called.

Master Thread:

//Master thread controls the players thread by making and cancelling them.

Main Thread:

//Calls the Main Thread.

**PHASE 2 PSEUDO CODE:-**

//In phase 2 Binary semaphore and mutex are used for shared variable.

//In this phase multi-threading is done i.e.: If one person is doing the Movement, then other person is allowed to roll the dice.

//This is done by using the mutex on movement and the binary semaphore on the rolling dice.

// If Hit rate is 0 and near the house then player is forced to complete another circle.

//Another if check is applied that if the players are standing safe squares then the collision is not possible.

**System Requirements:-**

Our PC Have 2 cores and 4 logical processors.

Installed Ram is OF 8 GB

The system type is 64-bit operating system, x64-based processor

The processor is basically Intel(R) Core(TM) i7 U Processor with 2.70GHz 2.90 GH frequency.

**CODE could have been implemented Like:-**

It could have been implemented in a way that all the 4 players first have to roll the dice at once.

This basically means, that all four players will roll the dice at once, and then they move according to their dice results. In this logic counting semaphore would be used in which we will lock all the three semaphores at once.