# P2 - Looking for Group Synchronization

100 Points Possible

**3/28/2025**

Attempt 1

In Progress

**NEXT UP: Submit Assignment**

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**Unlimited Attempts Allowed**

3/2/2025 to 3/28/2025

**Details**

## Specifications

This programming exercise will assess your understanding of process synchronization.
Consider the following synchronization problem:
Suppose you are tasked to create a solution that will manage the LFG (Looking for Group) dungeon queuing of an MMORPG.

a) There are only n instances that can be concurrently active. Thus, there can only be a maximum n number of parties that are currently in a dungeon.
b) A standard party of 5 is 1 tank, 1 healer, 3 DPS.
c) The solution should not result in a deadlock.
d) The solution should not result in starvation.
e) It is assumed that the input values arrived at the same time.
f) A time value (in seconds) t is randomly selected between t1 and t2. Where t1 represents the fastest clear time of a dungeon instance and t2 is the slowest clear time of a dungeon instance. For ease of testing t2 <= 15.

## Input

The program accepts inputs from the user.

n - maximum number of concurrent instances

t - number of tank players in the queue

h - number of healer players in the queue

d - number of DPS players in the queue

t1 - minimum time before an instance is finished

t2 - maximum time before an instance is finished

## Output

The output of the program should show the following:
Current status of all available instances
If there is a party in the instance, the status should say "active"
If the instance is empty, the status should say "empty"
At the end of the execution there should be a summary of how many parties an instance have served and total time served.

## Deliverables

1) Source code
2) Video Demonstration (test cases to be provided later)
3) Source code + build/compilation steps
4) Slides containing the following:

- Possible deadlock and starvation explanation
- Synchronization mechanisms used to solve the problem

**Choose a submission type**