# ITU Computer Engineering Department

# BLG 223E Data Structures, Fall 2021-2022

# Recitation #1

In this recitation, you are asked to write a C++ program that finds the best forward player among players in a list of football teams of last year tournament. There will be several teams and each team will have several forward players. The goal of this recitation is to implement re-sizable dynamic arrays.

You are expected to fill the methods with the Team class according to the header definition. The given main method should run properly using your classes, methods and variables. The main method should be able to create a dynamic array of teams and add player objects to the array of players on each team object of the team array.

If a new player is wanted to be added, and the related array size is exceeded, then its size has to be increased. If the current size is 0 then it should be increased by 3 otherwise it should be doubled. You can do this by creating a new dynamic array of the desired size and copying all content of the existing array.

The desired team-player structure is as follows:

Team 1

Team 2

Team 3

Team 4

P.1

P.1

P.1

P.1

P.2

P.2

P.2

P.2

P.3

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<<*Team and Player class definitions go to here>>*

The score evaluation to find the best player can be calculated as Eq 1. (#: total number)



**Given:** main() method that makes operations over methods and classes. Team and player class header files.

**Asked:** Create Team and Player .cpp files according to the header files given and fill the required methods in these .cpp files and main.cpp file properly.

Implement the following methods in the main.cpp file with appropriate arguments:

**listTeams():** Lists the teams.

**listTeamsAndPlayers():** Lists teams and their players.

**bestPlayer():** Prints the best player based on current data.

**addPlayer():** Adds a new player to the desired team. Prevent adding new player with number that already exist in the team.

**addTeam():** Adds a new team to team array.

These are sample method definitions. You are not restricted to these methods as long as your program pass Calico test cases. Create team.cpp and player.cpp files and fill methods accordingly.

**Complete and submit:** Completemethods and Submit whole project folder with player.cpp, team.cpp and main.cpp files in src subfolder.

**Due time to submit: 13.09.2021 23:59 over ninova**

Submission Rules

If explanations for this homework is not clear, you can ask your question on the message board for BLG 223E on NINOVA. Please check before writing your question whether your question is asked by someone else.

Make sure you write your name and number in all of the files of your project, in the following format: Make sure you write your name and number in all of the files of your project, in the following format:

*/\* @Author*

*Student Name: <student\_name>*

*Student ID : <student\_id>*

*Date: <date> \*/*

* Only electronic submissions through Ninova will be accepted no later than deadline.
* You may discuss the problems at an abstract level with your classmates, but you should not share or copy code from your classmates or from the Internet. You should submit your own, individual homework.
* Academic dishonesty, including cheating, plagiarism, and direct copying, is unacceptable.
* Use comments wherever necessary in your code to explain what you did.
* Note that **YOUR CODE WILL BE CHECKED WITH THE PLAGIARISM TOOLS!**