

Celal Bayar University Computer Engineering Department
CSE 2105 Data Structures

Project - I

21 October 2014

Number:

Name & Surname:

*You should send the homework to the **Res. Assist. Zeynep ÇİPİLOĞLU YILDIZ** until **12 November 2014 16:00**. Don't forget to write your name and your number. You should hand in fully working program as a ZIP/RAR file with all required files. You can ask your questions to me or Res. Assist. Zeynep ÇİPİLOĞLU YILDIZ.*

Assist. Prof. Dr. Tahir Emre KALAYCI

Project Specifications and Requirements

In this project you need to develop two programs which are explained in the following sections. All of your programs should be fully working programs. You can make a team up to 3 students. In your programs you should write the team members' names and numbers in the comments.

The main objective of the project is the development of efficient and convenient data structures for the programs. *Instead of using Java Data Structures Libraries you should develop your own data structures.* You should follow object oriented programming methodology.

1. Arithmetic Evaluation Program

In this program, user will be able to enter an arithmetic expression and convert that expression to a different notation and evaluate it. In the arithmetic expressions only $()$, $+$, $-$, $*$, and $/$ symbols and numbers are allowed. It must be able to perform the following tasks:

1. Convert *infix* and *prefix* expressions to *postfix* expression.
2. Check balancing symbols in an arithmetic expression.
3. Evaluate a *postfix* expression.

2. Hot Potato Game

In this program you are expected to implement a general simulation of the *Hot Potato* game. In this game children line up in a circle and pass an item from neighbor to neighbor as fast as they can. At a certain point in the game, the action is stopped and the child who has the item (the potato) is removed from the circle. Play continues until only one child is left. In your implementation user should input a list of names and a constant *num*. Your program must return the name of the last person remaining after repetitive counting by *num*.