

# Arab International University

## Parallel Programming Course (PLP-Lab)

### Assignment #2

#### A. Using Visual Studio with MPI.NET

Create a C# console application with the name (yourname MPICharCount) that:

1. Uses MPI.net library
  2. Initiates MPI environment
  3. Creates an Intracommunicator and assigns it to the World Communicator
  4. Reads a text file and stores it in a suitable data type (Multiline String)
  5. Broadcasts the content of the file and search character to all processes
  6. Each process will count in parallel the occurrences of a user specified search character, line by line, and the total number of characters of the line, then send the results to process "0"
  7. Process "0" will receive the summarized number of occurrences of the character and the total number of characters in the file
  8. Calculate and output execution speed
- Use comments to explain the functionality of the code
  - Compile and Run the project

#### B. Using command prompt with MS MPI (mpiexec):

1. Execute the hostname , date , time commands
  2. Take a screenshot showing the contents of the text files you are testing and the number of characters in it
  3. Run the program on 2,4,8 processes using mpiexec
  4. Take a screenshot of the results of the commands (hostname,date,time,mpiexec)
  5. Take a screenshot of the output
  6. Compare execution speeds by varying text files (at least 3) and number of processes and discuss the results
- **Create a pdf containing the code (content of .cs file) and the screenshots of the execution, and upload to LMS or send via email to [adzein@gmail.com](mailto:adzein@gmail.com) before Saturday 18/7/2020 .**

**GOOD LUCK**

**Alaa Aldin ZEIN**

**12/7/2020**