CSE354

HOMEWORK 4

1) Prove $L_2 = \{0^r1^s0^t : r, s, t \text{ are integers; } r>0, t>0, s\geq 0; s<r+t\}$ is not a regular language.

2) Use the CFL pumping lemma to show the given language is not to be context-free.

$$L = \{a^n b^n c^m \mid n \leq m \leq 2n\}$$

3) Design a PDA for $a^i b^j c^k \quad i + j = k$

Attention: Prepare and submit your homework with the given properties below. Otherwise your homework will not be accepted.

- Solution of the first two questions should be in "**pdf**" format and solution with hand-writing **will not be accepted**. Thus, use an editor (word, latex or etc.) to write the solution and convert to pdf.

- Solution of the third question should be prepared with the program **JFLAP**. Design your automata and test it. After you finish it, save your model (.jff file). You can look at the link below to see how to construct PDA in JFLAP.

  http://www.jflap.org/tutorial/pda/construct/index.html

- You have two files **Name_Surname_Hw4 .pdf** and **Name_Surname_Hw4 .jff.** Zip your two files (Example Cagri_Yesil_hw4.zip). Submit to coadsys.