BLG 212E-Homework 1

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1 Question 1

We have 2 **4Kx4 R/W** and 1 **4Kx8 R/W** memory chips. Using these chips, design a **8Kx8** memory that starts from the memory address **$6000** and **leave no spaces** between blocks. The data bus is **8 bits**, and the address bus is **16 bits.**

(a) Calculate the memory address range for all chips.

(b) Draw the memory design by showing all necessary connections. (Address bus, Data bus, Chip select signals, CPU connections). Use an address decoder (determine its type) and logic gates.

2 Question 2

Write the given programs in ARM Assembly. Provide explanations in your code as comments. **The codes that do not compile will not be evaluated.**

(a) A program that calculates 1's complement.

(b) A program that calculates the power of a number recursively.

3 Submission

Prepare a pdf file containing your solutions. Show each step of your solution and make comments where necessary. You should type your name and student ID at the top of the pdf file. For the second part, you need to upload your codes as "complement.s" and "power.s".

- You must submit your homework through the Ninova system before the due date.
- **Late submissions will not be accepted.**
- Assignments have to be completed individually. **If any plagiarism is detected, the disciplinary regulations will apply.**