**Computer Architecture Assignment #1**

**Address 000 | Instruction EA000006 (Example)**

1. Change to binary format: 1110 1010 0000 0000 0000 0000 0000 0110
2. Write assembly code: B #8;
3. Describe why you wrote the assembly code like above:
   1. Type of instruction: According to the figure A3-1 in ARM manual, ‘Branch and branch with link’ is only one instruction set encoding whose values at [25:27] bit is 101. So, I can figure out this instruction is branch instruction.
   2. Operation – Condition Field: According to the A4.1.5(Page A4-10), there is the detail of the branch instruction. ‘Operation’ part of the instruction said that I should check the condition is passed first. The condition field of this instruction is 1110 and it means the instruction can operate unconditionally.
   3. Operation – L: According to page A4-10, branch instruction branches without storing a return address when L is omitted. In the case of this instruction, it doesn’t need to store any return address because the L bit is 0.
   4. Operation – Target Address: According to page A4-10 in ARM manual, the target address is calculated like below.
      1. First, the result of sign-extending the 24-bit signed immediate to 30 bits is 00 0000 0000 0000 0000 0000 0000 0000 0000 0110. (Because the signed immediate is 0000 0000 0000 0000 0000 0110 here.)
      2. Then, get 0000 0000 0000 0000 0000 0000 0001 1000 by shifting the result left two bits.
      3. Because the address of this instruction is 0, the content of PC will be 0 + 8 bytes. So, the target address will be (0+8) + 24 = 32(bytes). It means after the operation of this instruction, PC will be move to 32/4 = 8.
      4. Therefore, I can write the assembly code of this instruction like ‘B #8;’ because the syntax of branch instruction is ‘B{L}{cond} <target\_address>’.
4. What is the meaning of the instruction? : The instruction means ‘branch to address 8’.

Address 001 | Instruction EAFFFFFE

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 002 | Instruction EA0000A7

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 003~005 | Instruction EAFFFFFE

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 006 | Instruction EA0000A4

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 007 | Instruction EAFFFFFE

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 008 | Instruction E59F2EC8

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 009 | Instruction E3A00040

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 00A | Instruction E5820010

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 00B | Instruction E5820014

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 00C | Instruction E5820018

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 00D | Instruction E582001C

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 00E | Instruction E5820020

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 00F | Instruction E5820024

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 010 | Instruction E3A0003F

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 011 | Instruction E5820028

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 012 | Instruction E3A00008

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 013 | Instruction E582002C

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 014 | Instruction E59F3E9C

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 015 | Instruction E59F1E9C

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 016 | Instruction E5831000

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 017 | Instruction E59F9E98

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 018 | Instruction E3A08000

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 019 | Instruction E5898000

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 01A | Instruction E5898004

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 01B | Instruction E5898008

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 01C | Instruction E589800C

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 01D | Instruction E5898010

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 01E | Instruction E5898014

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 01F | Instruction E5898018

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 020 | Instruction E59FDE78

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 021 | Instruction E5931200

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 022 | Instruction E3510001

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 023 | Instruction 0A000000

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Address 024 | Instruction EAFFFFFB

1. Change to binary format: YOUR ANSWER
2. Write assembly code: YOUR ANSWER
3. Describe why you wrote the assembly code like above: YOUR ANSWER
4. What is the meaning of the instruction? : YOUR ANSWER

Explain the actual execution flow of the instructions(Address 000~024)

YOUR ANSWER

Specify where the execution ends (If not, specify the range repeated in detail)

YOUR ANSWER