**Make a simple assembly program and assembler to machine code with the following rules:**

**Encoding:**

8-bit long binary string

XX XX XX XX

*OpCode result register first reg second reg*

**No immediate numbers are used in this CPU. All numbers must be saved in registers from the memory or arithmetic operation of other registers**

**4 Instructions:**

STR 🡪 OpCode = 00

LDR 🡪 OpCode = 01

ADD 🡪 OpCode = 10

SUB 🡪 OpCode = 11

**4 Registers:**

Reg0 🡪 regCode = 00

Reg1 🡪 regCode = 01

Reg2 🡪 regCode = 10

Reg3 🡪 regCode = 11

**The format of the machine code must be in hexadecimal. See below for example:**

v3.0 hex words addressed

00: 00 00 50 a5 28 e9 00 00 00 00 00 00 00 00 00 00

10: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

20: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

30: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

60: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

70: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

80: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

90: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

a0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

b0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

c0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

d0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

e0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

f0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00