Task 1:

17 dec (or 11 hex, represented by 0x11) is stored in register x2 upon the assembly and execution of the provided code.

Task 2:

11010010100 0000000010000000 00010
MOVZ   -   128   2

MOVZ x2,#128

11010010100 0000000011100111 00100
MOVZ   -   move= 231   rd=4

MOVZ x4,#231

11001011000 00010 000000 00100 00101
SUB   x=2   -   x=4   x=5

SUB x5,x4,x2

D360 0CA5

11010011011 00000 000011 00101 00101
LSL   rm=0 shamt=3 rn=5 rd=5

LSL x5,x5,#3

Task 3:

LEGv8 Simulator

```
1        MOVZ    x1, #5
2        LSL     x2, x1, #2
3        MOVZ    x3, #11
4        LSL     x4, x3, #4
5        MOVZ    x5, #25
6        ADD     x6, x2, x4
7        ADDI    x0, x6, #25
8
```


ADDI X0, X6, #25
1001000100 000000011001 00110 00000
Opcode   ALU_immediate   Rn   Rd

PC	0x40001c	Hex Dec	Z	0	N	0	C	0	V	0

X0	221	Hex Dec	X16	0x0	Hex Dec
X1	5	Hex Dec	X17	0x0	Hex Dec
X2	20	Hex Dec	X18	0x0	Hex Dec
X3	11	Hex Dec	X19	0x0	Hex Dec
X4	176	Hex Dec	X20	0x0	Hex Dec
X5	25	Hex Dec	X21	0x0	Hex Dec
X6	196	Hex Dec	X22	0x0	Hex Dec
X7	0x0	Hex Dec	X23	0x0	Hex Dec
X8	0x0	Hex Dec	X24	0x0	Hex Dec
X9	0x0	Hex Dec	X25	0x0	Hex Dec
X10	0x0	Hex Dec	X26	0x0	Hex Dec
X11	0x0	Hex Dec	X27	0x0	Hex Dec
X12	0x0	Hex Dec	SP	0x7ffffffffc	Hex Dec
X13	0x0	Hex Dec	FP	0x0	Hex Dec
X14	0x0	Hex Dec	LR	0x0	Hex Dec
X15	0x0	Hex Dec	XZR	0x0	Hex Dec
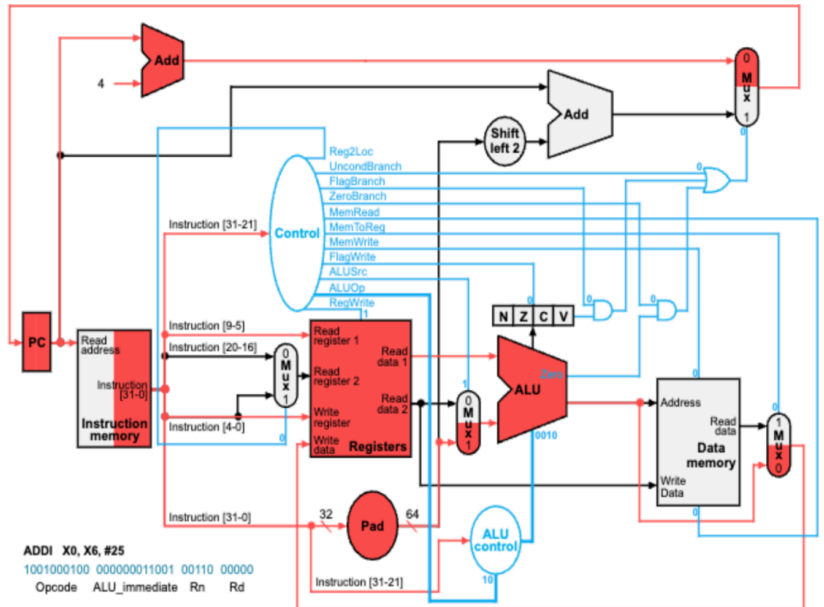
Printed Code, resulting in 221dec stored in register x0:

MOVZ	**x1, #5**
LSL	**x2, x1, #2**
MOVZ	**x3, #11**
LSL	**x4, x3, #4**
ADD	**x6, x2, x4**
ADDI	**x0, x6, #25**

Task 4:
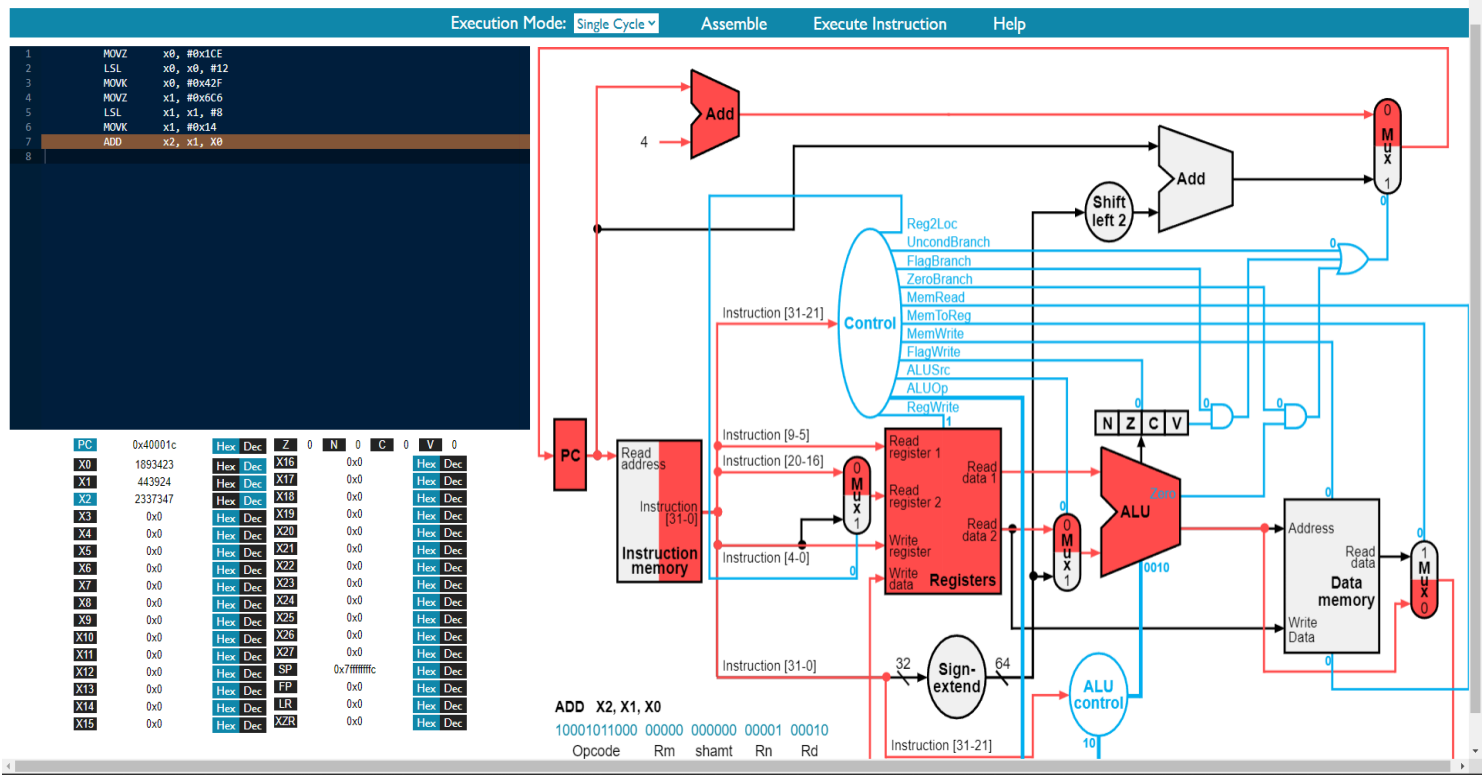
Printed Code, resulting in 2337347dec stored in register x2:

MOVZ	x0, #0x1CE
LSL	x0, x0, #12
MOVK	x0, #0x42F
MOVZ	x1, #0x6C6
LSL	x1, x1, #8
MOVK	x1, #0x14
ADD	x2, x1, X0

Task 5:

LEGv8 Simulator

```
1        MOVZ    X3, #49    //Used as loop counter
2        MOVZ    X2, #1
3        MOVZ    X1, #1
4  loop:  ADDI    X2, X2, #2
5        SUBI    X3, X3, #1
6        ADD     X1, X1, X2
7        CBNZ    X3, loop
8
```
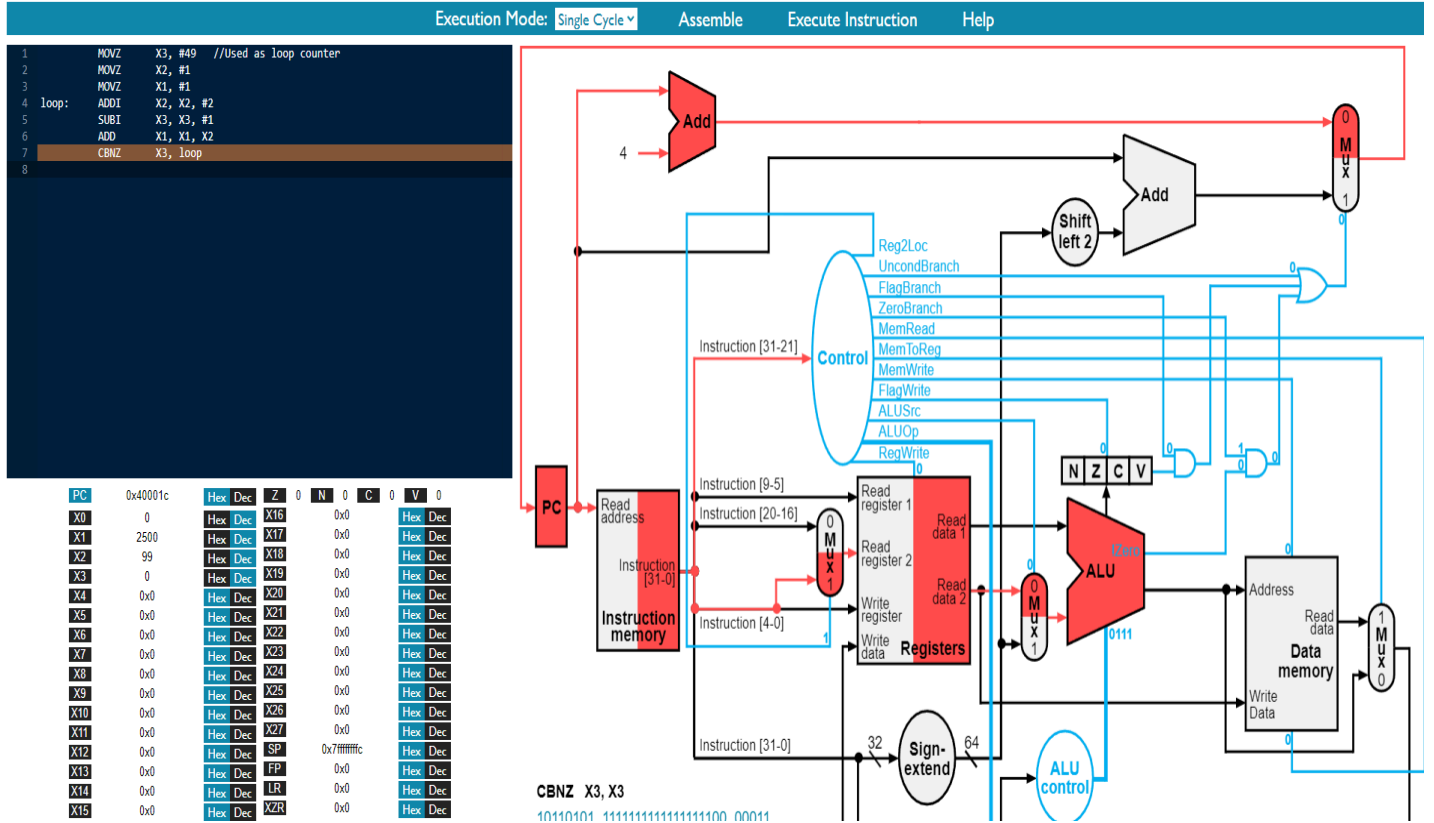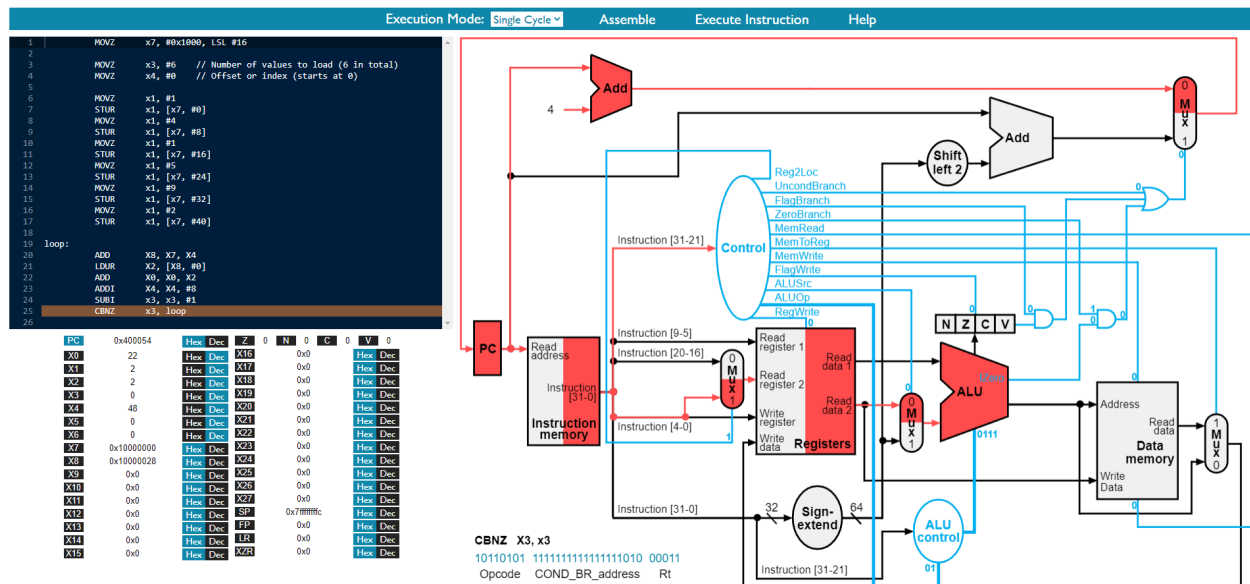
Printed Code, resulting in 2500dec stored in register x1:

```
        MOVZ X3, #49  // loop counter
        MOVZ X2, #1
        MOVZ X1, #1
loop:   ADDI   X2, X2, #2
        SUBI   X3, X3, #1
        ADD    X1, X1, X2
        CBNZ   X3, loop
```

Task6:

Printed code, resulting in 22dec stored in register x0.

```
        MOVZ x7, #0x1000, LSL #16
        MOVZ x3, #6  // Number of values to load (6 in total)
        MOVZ x4, #0  // Offset or index (starts at 0)

        MOVZ x1, #1
        STUR  x1, [x7, #0]
        MOVZ x1, #4
        STUR  x1, [x7, #8]
        MOVZ x1, #1
        STUR  x1, [x7, #16]
        MOVZ x1, #5
        STUR  x1, [x7, #24]
        MOVZ x1, #9
        STUR  x1, [x7, #32]
        MOVZ x1, #2
        STUR  x1, [x7, #40]

loop:
        ADD    X8, X7, X4
        LDUR X2, [X8, #0]
        ADD    X0, X0, X2
        ADDI  X4, X4, #8
        SUBI   x3, x3, #1
        CBNZ x3, loop
```