

# Lab#2 on ARM Programming

## 1 Lab Outcomes

1. Become good at the use of CSE112 tool ARMSim of U of Victoria.
2. Become clear about linkage and loading.

## 2 Tasks

1. This lab is worth 10%. Scoring is shown for 100.
2. Your solutions to tasks indicated with ARMSim must use ARMSim/ UAL syntax for assembly coding.
3. Pretty-print and explain your UAL code. This amounts to 50%.

### 2.1 Task: (40 points) Exercises 9 and 10 on p146

#### Sarangi

1. (20 points) First answer Exercise 9. Using this answer as a subroutine (procedure) named P09, solve Exercise 10.
2. The Exercise 10 states "using the minimum number of instructions. This requirement is relaxed in this lab. Correctness is not relaxed.
3. (20 points) Code your answer to Ex 10 as a procedure P10. The main of your process calls P10, which calls P09.

### 2.2 Task: (40 points) Exercise 14 on p146

#### Sarangi

1. (20 points) Code your answer to Ex 14 as a procedure P14. The main of your process calls P14.
2. (20 points) "Use conditional instructions as much as possible." Did you? Defend your solution in this context.

## **2.3 Task: (20 points) Linkage and Loading**

1. We wish to rearrange the above into a new program with a main of course and one copy each of P09, P10 and P14.
2. We want you link them in two different ways.
  1. One program G1 has main, P09, P10 and P14 in that order.
  2. The other program G2 has main, P09, P14 and P10 in that order.
  3. Save the linked programs G1 and G2 as binary files.
  4. Execute each of G1 and G2 separately. Show that the results are the same.

## **2.4 Bonus Optional Task: (30 points) Exercise 25 on p147 Sarangi**

## **3 Turn In**

1. Submit a single pdf file with all answers in it. Including any diagrams and screenshots.

## **4 End**

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