

# **CSE 151A HW 01**

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## **1 Preface**

This project seeks to explore a subset of the ARM instruction set. The goal is to design a custom instruction set inspired by the ARM architecture, create an assembler for the instruction set, implement the architecture in hardware with an RTL model, and verify the correctness of the processor.

## **2 ISA Design**

## **3 Assembler**

## **4 Instruction Memory**

## **5 Program Counter**

## **6 Program Counter Adder**

## **7 Register File**

## **8 Data Memory**

## **9 ALU**

## **10 ALU Control**

## **11 FPU**

## **12 FPU Control**