COSC 2440
Computer Organization and Architecture

Programming Assignment 2

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Fall 2016

Homework 05

- Deadline: Tuesday, Nov 29, 11.59 pm
- Submissions through Blackboard only
  - Source code files (.s) **only,** one for each part
  - Please do not submit project files or documents otherwise
  - Only one submission attempt - only upload when you are really done!
- In case of questions, ask **early!**
- Total no. of points: 30
- Three parts

- Part1: Develop an assembly language version for the ARM ISA for the following C code representing a simple search algorithm

(10 pts)

```
int main(int argc, char **argv)
{
  int a[10]={7,6,4,5,5,1,3,2,9,8};
  int i;
  int s=1;

  for (i=0; i<10; i++)
    if (s==a[i]) break;

  return 0;
}
```

- Part2: Develop an assembly language version for the ARM ISA for the following C code (while loop) (10 pts)

```
int main(int argc, char **argv)
{
  int a[10]={7,6,4,5,5,1,3,2,9,8};
  int i=0;
  int s=0;

  while ( i < 10 ) {
    s = s + a[i];
     i = i+1;
  }

  return 0;
}
```

- Part3: Develop an assembly language version for the ARM ISA for the following C code (switch statement) (10 pts)

```
int a[10]={7,6,4,5,5,1,3,2,9,8};
int r=0, s=2;

switch ( s ) {
   case 0:
        r = a[0] + a[1]; break;
   case 1:
        r = a[1] - a[2]; break;
   case 2:
        r = a[2] * a[3]; break;
   default:
        r = a[9];
  }
```

Some hints

- Please use as a template the first example from the lab section (i.e. the version which does not include the Startup file provided by Keil)
- Please add a comment header to each file containing your name, which part the provided source code is implementing (part 1 or part 2), and a brief description of your solution.