EE 308 – Homework 1
Due January 25, 2012


2. Convert your name to ASCII. For example, if your name is “Jane Smith”, the answer will be

<table>
<thead>
<tr>
<th>J</th>
<th>a</th>
<th>n</th>
<th>e</th>
<th>S</th>
<th>m</th>
<th>i</th>
<th>t</th>
<th>h</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x4A</td>
<td>0x61</td>
<td>0x6E</td>
<td>0x65</td>
<td>0x20</td>
<td>0x53</td>
<td>0x6D</td>
<td>0x69</td>
<td>0x74</td>
</tr>
</tbody>
</table>

3. Consider the following MC9S12 program:

```assembly
; MC9S12 demo program
; EE 308

; This is a program to add four numbers in memory from $1000 through $1003, divide the sum by four, and store the result in address $1004
prog: equ $2000 ; Starting address from program
data: equ $1000 ; Starting address for data
org prog ; Set initial program counter value
ldaa input1 ; Load first number into ACCA
adda input2 ; add second number
adda input3 ; add third number
adda input4 ; add fourth number
asra ; divide by 2
asra ; divide by 2
staa average ; save result in memory
swi

org data ; Put data starting at this location
input1: dc.b $35 ; First number
input2: dc.b $42 ; Second number
input3: dc.b $3f ; Third number
input4: dc.b $2c ; Fourth number
average: ds.b 1 ; Reserve one byte for results
```

What is the value of Register A after each instruction of the program has executed? (E.g., after the instruction ldaa input1, Register A will have a 0x35 in it.) You do not need to consider the swi instruction.

4. What is the addressing mode for each of the following instructions:
   - ldaa input1
   - asra

5. What are the address of RAM in the MC9S12 which are available to you for your program and data?