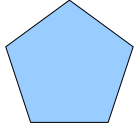


CS 218 – MIPS Assignment #1

Purpose: Become familiar with RISC Architecture concepts, the MIPS Architecture, and QtSpim (the MIPS simulator)
Points: 30

Assignment



Write a MIPS assembly language program to find the perimeter (sum of sides) of a equilateral pentagon (all sides the same length). After the perimeters are computed, find the

following;

- maximum, minimum, and average for the perimeters.
- maximum, minimum, and average for the even values in the perimeters.
- maximum, minimum, and average for the values that are evenly divisible by 9 for the perimeters.

You may assume that the first number is *always* even and evenly divisible by 9.

You will need to download and install the **QtSpim** simulator before completing this assignment. Refer to the class web page for a link to the **QtSpim** software. Refer to the example output for formatting.

Use the below data set.

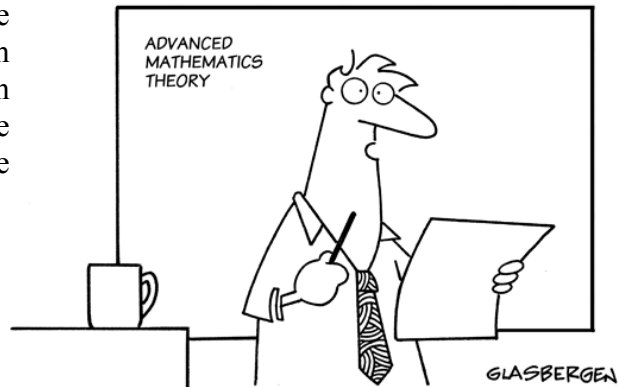
```
sides:  .word    252, 193, 982, 339, 564, 631, 421, 148, 936, 157
        .word    117, 171, 697, 161, 147, 137, 327, 151, 147, 354
        .word    432, 551, 176, 487, 490, 810, 111, 523, 532, 445
        .word    163, 745, 571, 529, 218, 219, 122, 934, 370, 121
        .word    315, 145, 313, 174, 118, 259, 672, 126, 230, 135
        .word    199, 105, 106, 107, 124, 625, 126, 229, 248, 991
        .word    132, 133, 936, 136, 338, 941, 843, 645, 447, 449
        .word    171, 271, 477, 228, 178, 184, 586, 186, 388, 188
        .word    950, 852, 754, 256, 658, 760, 161, 562, 263, 764
        .word    199, 213, 124, 366, 740, 356, 375, 387, 115, 426
len:     .word    100
```

You may declare additional variables as needed.

Submission

When complete, submit:

- A copy of the **source file** via the class web page before class time.



"Today's test is 70% of your final grade which makes up 35% of your grade for the semester and 20% of your GPA for 50% of your scholastic career for 15% of the curriculum. If you can explain this to the person next you, you pass the test."

Example Output

The output should appear as follows (with the appropriate results displayed):

```
MIPS Assignment #1

Program to find:
* min, max, and average of a list of perimeters.
* min, max, and average of the even perimeter values.
* min, max, and average of the perimeter values divisible by 9.

List min =
List max =
List ave =

Even min =
Even max =
Even ave =

Divisible by 9 min =
Divisible by 9 max =
Divisible by 9 ave =
```

Submission

- All source files must assemble and execute with QtSpim/SPIM MIPS simulator.
- Submit source file
 - Submit a copy of the program source file via the on-line submission
- Once you submit, the system will score the project and provide feedback.
 - If you do not get full score, you can (and should) correct and resubmit.
 - You can re-submit an unlimited number of times before the due date/time (at a maximum rate of 5 submissions per hour).
- Late submissions will be accepted for a period of 24 hours after the due date/time for any given assignment. Late submissions will be subject to a ~2% reduction in points per an hour late. If you submit 1 minute - 1 hour late -2%, 1-2 hours late -4%, ... , 23-24 hours late -50%. This means after 24 hours late submissions will receive an automatic 0.

Program Header Block

All source files must include your name, section number, assignment, NSHE number, and program description. The required format is as follows:

```
# Name: <your name>
# NSHE ID: <your id>
# Section: <section>
# Assignment: <assignment number>
# Description: <short description of program goes here>
```

Failure to include your name in this format will result in a reduction of points.

Scoring Rubric

Scoring will include functionality, code quality, and documentation. Below is a summary of the scoring rubric for this assignment.

Criteria	Weight	Summary
Assemble	-	Failure to assemble will result in a score of 0.
Program Header	3%	Must include header block in the required format (see above).
General Comments	7%	Must include an appropriate level of program documentation.
Program Functionality (and on-time)	90%	Program must meet the functional requirements as outlined in the assignment. Must be submitted on time for full score.