Programming Assignment #4

- **Due:** Noon on Sunday 11 March 2018. Late submissions (if second time) will be penalized 10%.
- **Team Based:** You may work in groups of up to 3 members.
- **Required Artifacts:**
  - The source code (.c) file. Only one student needs to upload the file to Titanium for the entire group. Write the following information as comments at the beginning of the file.
    - All the student names with the associated CWIDs
      - Ex: Gina Ackerman 135798
    - Assignment #
  - Large screenshot(s) of your program output.
- **Note:** No late assignment will be accepted after 24 hours of the due date, i.e., your group will get 0 points.
- **Grading Rubric:**
  - Build cleanly: 5 points
  - Correct Output: 5 points
  - Functions:
    - compute_discounts(…) // 30 points
    - display_discounts(…) // 20 points
    - main() // 10 points

Requirement

In the exam 1, the parent and child processes must display their own computations because the parent and child processes have their own copies of the data.

Develop a C program to spawn a (child) process to compute the sale and price information for different percentage discounts. The program must also establish a shared-memory object between the parent and child processes. The child process writes the computed sale and price information to the shared-memory object. The parent can then display the data when the child process completes.

Because the memory is shared, any computations the child process makes will be reflected in the parent process. In this exercise, the parent and child processes must be coordinated so that the parent process does not output and display the data until the child process finishes execution. The two processes will be synchronized

using the wait system call.

Note: For the school Linux server, you must include "-lrt" as follows:

gcc discounts_sln.c -o test -lrt

Below is the output example of the program:

```
discount  total     average   lowest    highest
--------  -----     -------   ------    -------
   5%     $4788.00  $957.60   $684.00   $1425.00
  10%     $4536.00  $907.20   $648.00   $1350.00
  15%     $4284.00  $856.80   $612.00   $1275.00
  20%     $4032.00  $806.40   $576.00   $1200.00
  25%     $3780.00  $756.00   $540.00   $1125.00
```

For the percent sign, the C syntax is "%%".