Practical Lab Session: Week 6

For this practical lab session, please first ensure you have viewed the **Week 6** video sessions **6.1**, **6.2** and **6.3**. Within these sessions, you should attempt the development exercises presented as **Challenges** during this lab session. Please ensure you complete the set of challenges prior to the next lab session and upload screenshots of your results to the Progress Management section on Blackboard as directed.

Session 6.1 Challenge: Snap!

- Implement the class `Snap` to play the classic card game according to the following rules
    - The application should generate 100 random cards displaying each as it is generated.
    - The rank value of each consecutive pair of cards is compared and the message "SNAP!!!" is displayed when a match is found (i.e. for 100 cards, 99 comparisons are made)

- Extend the `CardTest` class to check for **supersnaps** (where the cards are of the same colour as well as the same rank). Add new methods to the `Card` class to help you as required.
    - The message "SUPERSNAP!!!" should be displayed when a snap with similarly coloured cards is found.
    - The final output should report the number of supersnaps as well as the number of snaps

Note: an example of the output from the program is provided in the video session.

Session 6.3 Challenge: Compare the performance of the iterative and recursive Selection Sort techniques

- Revisit the Scenario from Section 6.2 and measure the execution time to sort 1000 arrays of 100, 200, 400, 800, 1600, 3200 and 6400 elements.
- Perform the exercise for both the iterative and recursive versions of the Selection Sort and report the results as a series of 3 values per line – array size, iterative sort time, recursive sort time.

Note: an example of the output from the program is provided in the video session.