# Assignment 6 (5%)
# Set Union

Deadline: Friday 19 November 2021 at 23:59 on Submitty

Working individually, complete the assignment below. Submit your solution to Submitty (`https://submit.scss.tcd.ie`). By submitting your solution, you are confirming that you have familiarised yourself with College's policy on plagiarism (`https://libguides.tcd.ie/plagiarism`).

Your mark will be the auto-graded mark assigned by Submitty (10 marks) plus a manually assigned mark (5 marks) for programs that demonstrate excellent presentation, helpful, concise pseudo-code comments and a well-structured approach to solving the problem.

You are allowed to submit five attempts for the assignment without penalty. Subsequent attempts will attract a 1 mark penalty each, up to a maximum penalty of 5 marks.

Submitty will allow you eight "late days" over the full semester. This means, for example, you can submit one assignment late by eight days or eight assignments late by one day (or part thereof) each, without penalty. Once your "late days" are used up, you will receive zero marks for any late submissions.

## Instructions

Two sets, $A$ and $B$, are stored in read only memory. Design and write an ARM Assembly Language program that will store the union of $A$ and $B$ in memory as a new set $C$. The union is the set of elements that are in either $A$ or $B$ or both. Elements must not be repeated when storing the union.

Each of the sets is stored in memory as a word-size, unsigned value representing the number of elements in the set followed by a sequence of word-size, signed values representing the elements of the set. For example, the sequence of values $\{4, 10, 12, -14, 16\}$ represents a set with 4 elements: $\{10, 12, -14, 16\}$.

The start addresses of $A$ and $B$ are stored in R1 and R2. Store the third set $C$ in memory (RAM) at the address provided in R0 using the format described above (i.e. the number of elements in the set followed by the elements themselves.) The elements may appear in any order.