CSC165, Summer 2014
Assignment 1
Weight: 3%
Due May 23rd, 2:00 p.m.

The main goal of this assignment is for you to get started with LaTeX, to introduce yourselves to me, and to start practicing quantifiers. You may work in groups of no more than two students, and **you should submit a TEX file named `a1.tex` and a PDF file named `a1.pdf` that was produced by compiling your `a1.tex`** and that contains the answers to the questions below. These files should be submitted using MarkUs. **Please make sure that your files are named `a1.tex` and `a1.pdf`. You will lose marks for not submitting correctly-named files.**

You will receive 20% of the marks for any question you either leave blank, or write "I cannot answer this."

You can choose how exactly to present your answers. For example, to answer Question 1, it is okay to use a table, a list, or to simply state "Our names are Harry Potter and Hermione Granger and our CDF logins are..." (if those in fact are your names). Any reasonable presentation will get full marks. However, the presentation needs to be clear and free of typos.

1. (10 pts.) If you are working in a team of two people, provide the names and CDF login names of the students in the team. If working alone, provide your name and CDF login.

2. (10 pts.) List the Computer Science course(s) that you are taking this term. Each member of the team should supply their own list. Please supply the course number and title.

3. (10 pts.) List the Computer Science course(s) that each team member has taken in the past.

4. (50 pts.) In class, you have seen that the square root of 2 is irrational, i.e., that there do not exist whole numbers n and m such that $\sqrt{2} = n/m$. Recall that we can express the same statement symbolically like this: $\nexists (n, m), \sqrt{2} = n/m, n \in \mathbb{Z}, m \in \mathbb{Z}^*$.

   This can be typeset in LaTeX as follows:

   ```
   $\not\exists (n, m), \sqrt{2} = n/m, n \in \mathbb{Z}, m \in \mathbb{Z}^*$.
   ```

   On the other hand, if you square 5, you get a rational number (namely, $25 = 25/1 = 50/2$). We can express this statement symbolically as follows: $\exists (n, m), 5^2 = n/m, n \in \mathbb{Z}, m \in \mathbb{Z}^*$. This can be typeset in LaTeX as:

   ```
   $\exists (n, m), 5^2 = n/m, n \in \mathbb{Z}, m \in \mathbb{Z}^*$
   ```

Now, instead of the square root, consider division by 2.

(a) If you divide 7 by 2, do you get a **natural** number? Answer yes or no, and give a symbolic expression that means either "The result of dividing 7 by 2 is a natural number" or "The result of dividing 7 by 2 is not a natural number," depending on which one is true. For this question, you **can** assume that the reader knows the definition of natural numbers. Recall that the set of natural numbers is denoted $\mathbb{N}$ (typeset as `\mathbb{N}` in LaTeX).

(b) If you divide 7 by 2, do you get a **rational** number? Answer yes or no, and give a symbolic expression that means either "The result of dividing 7 by 2 is a rational number" or "The result of dividing 7 by 2 is not a rational number," depending on which one is true. For this question, you **cannot** assume that the reader knows the definition of rational numbers.