In the first two lectures, an example that arose several times involved an air traffic controller who wants to route a plane into some sector of the sky, (x,y,z) where it will be flying for some time period (t_a, t_b). In situations where different controllers might share some sectors, the computing system is expected to avoid conflicts by only granting such a request if it is safe to do so. We saw that problems of this sort are hard to solve fault-tolerantly, and in particular that guarantees of high availability are a big problem when using Web Services or similar architectures. Later in the course we'll see some options for solving these kinds of problems, but for now, let's just accept that they are "hard".

In a short written essay (one to one and a half typed pages in the same format at this handout: 12 point font, 1 ¼" margins, normal inter-line spacing, times-new-roman font) discuss the following assertion:

> ***"The Air Traffic Control availability problem would almost never arise in any other kind of system. In fact, the Web Services model can easily support high availability for almost anything a business application might ever want to do."***

Decide if you agree or disagree with this statement. Organize your thinking so that you can write this short memo using factual information – we are much less interested in your opinions than in the facts on which you based your conclusion. For example, if you disagree with the statement, you might offer a number of very common problems that would arise if heavy corporate use of Web Services becomes the norm and yet the properties of Web Services systems remain the same. If you agree with the statement, your essay should support your views by arguing *from facts* that the need for anything as "strong" as what we see in the ATC system is so rare that even if Web Services *never* can deal with such things, it won't matter to anyone except the FAA!

Even though your essay won't be all that much longer than this assignment itself, that doesn't mean you shouldn't take it seriously! We expect carefully reasoned responses, based on independently verifiable facts. For example, if you assert that 95% of business systems have such and such a property, you need to explain why you believe this to be true in a way that would let an independent person (or a grader) verify that assertion, if he or she decides to do so! Similarly, if you assert that the claim above is wrong and that the availability problem we discussed could be a common issue, give convincing, realistic examples from many domains. If you limit yourself to extremely obscure and unlikely scenarios, or to problems that could obviously be solved in some other way, the TA might not be convinced by your essay.

Future homework assignments may not be as wordy as this one, but if we request an essay, the parameters will remain the same: length, but also the need to present a reasoned argument that starts with facts and reaches conclusions someone could independently verify.