Analysis Lab 2

Topic: Introducing the "Epsilon" Definition of Least Upper Bound

Guidelines for Lab Report

For this lab, submit a report according to guidelines given below.

1. For Section 2.1, enter your answers for Questions 1-3 in the table provide on page 2. Write your explanation to Question 4 in the space provided. Enter your answers to Question 5 in the table given on page 3. Write your explanation to Question 6 in the space provided.

2. For Section 2.2, submit your entries for Table 1 and your response to Question 2 (page 4) and your entries for Table 2 and your response to Questions 4 and 5 (page 5).

3. For Section 3, submit your responses to Questions 1-3, and provide your version of the "new definition," as instructed in Question 4.

4. Submit the two proofs (i) and (ii) that you are asked to prove in Section 4. What is the practical significance of proving these two definitions to be logically equivalent? Each proof should go on a separate page (or pages). Attach your proofs and the answer to this question with the rest of this report. Write each proof on a separate sheet(s).

5. Complete the Questions for Reflection as assigned by your instructor. Write your response to each question on a separate sheet(s), and attach to the rest of this report.

2   Using Examples to Enhance Understanding

2.1   Example 1

Fill in the table for the set S_1 for Questions 1-3 given in Section 2.1. The symbol s denotes the supremum.

	s	$\epsilon = .5$	$\epsilon = .1$	$\epsilon = .05$	$\epsilon = .01$
S_1					

Enter your explanation to Question 4 in the space provided. Attach an additional sheet, if necessary.

Fill in the table for the set S_1 for Question 5.

	u	$\epsilon = .5$	$\epsilon = .1$	$\epsilon = .05$
S_1				

Enter your explanation to Question 6 in the space provided. Attach an additional sheet, if necessary.

2.2 Example Set 2

Fill in Table 1 for the sets and values of ϵ listed below. s denotes the supremum. For each set, enter your Yes/No answer to Question 2 in the column marked Q2.

Set	s	$\epsilon = .5$	$\epsilon = .1$	$\epsilon = .05$	Q2
S_2					
S_3					
S_4					
S_5					

Provide your explanation for Question 2 below. Attach an additional sheet, if necessary.

Fill in Table 2 for the sets and values of ϵ listed below. s denotes the supremum. For each set, enter your Yes/No answer to Question 4 in the column marked Q4.

Set	u	$\epsilon = .5$	$\epsilon = .1$	$\epsilon = .05$	Q4
S_2	1.2				
S_3	2.6				
S_4	2				
S_5	1.1				

Provide your explanation for Questions 4 and 5 below. Attach additional sheets, if necessary.

3   Critical Thinking Questions

On this page, write your responses to Questions 1-3. Then, write your version of the "new" definition. Attach additional sheets, if necessary.