University of St Andrews

Computer Graphics

CS4102

Ring-Based Distributed System

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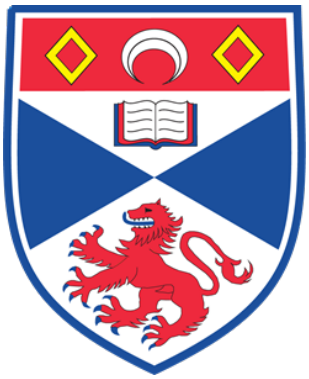
May 4, 2020



Goal

To demonstrate an understanding of leader election and mutual exclusion in distributed systems by developing a ring-based distributed social media application.

Contents

1 Initial Set-up

usage: java -jar ⟨program⟩-with-dependencies.jar	
-d,–drop	Include if this node should trigger a database refresh.
-e,–election ⟨arg⟩	Election method to use.
-f,–list ⟨arg⟩	Path to file containing list of nodes (resource P).
-i,–id ⟨arg⟩	ID of this node.

Table 1: Arguments for running application.

2 Receive/Send Posts

2.1 Server

Message Type	Usage	Payload
LOGIN	Sent by client to declare a username to the node.	Username
JOIN_GROUP	Sent by client to subscribe to a group.	Name of group to join.
LEAVE_GROUP	Sent by client to unsubscribe from a group.	Name of group to leave.
CHAT_MESSAGE	Text sent between clients.	To, From, Time, Contents
ERROR	Sent by server if an error occurs	Explanation

Table 2: Messages sent between client and server.

3 Testing

4 Summary

Functionalities implemented:

1. Dynamic ring formation

5 How to Run