OOP Coursework 1 - Report
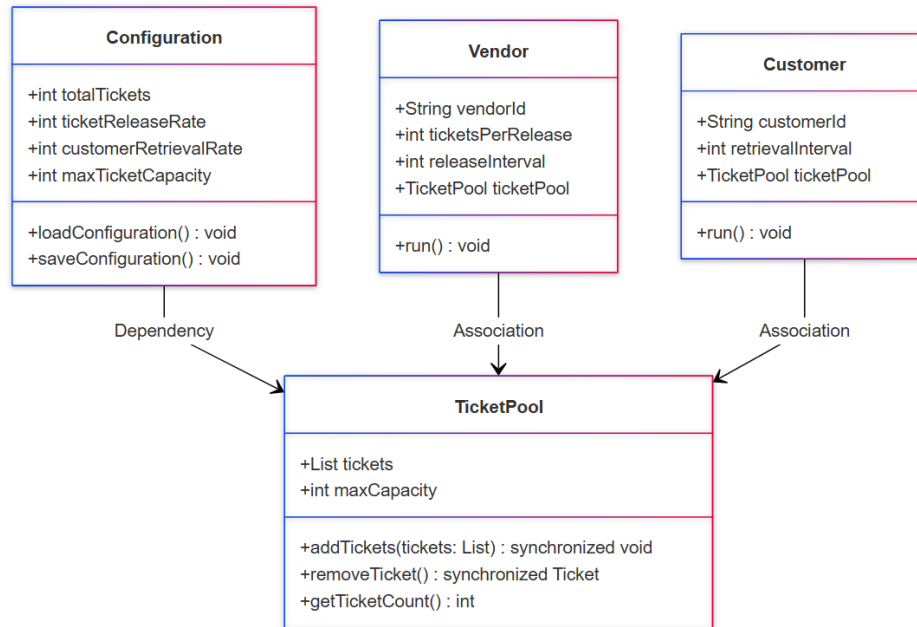
Real Time Booking System

Module name: Object Oriented Programming
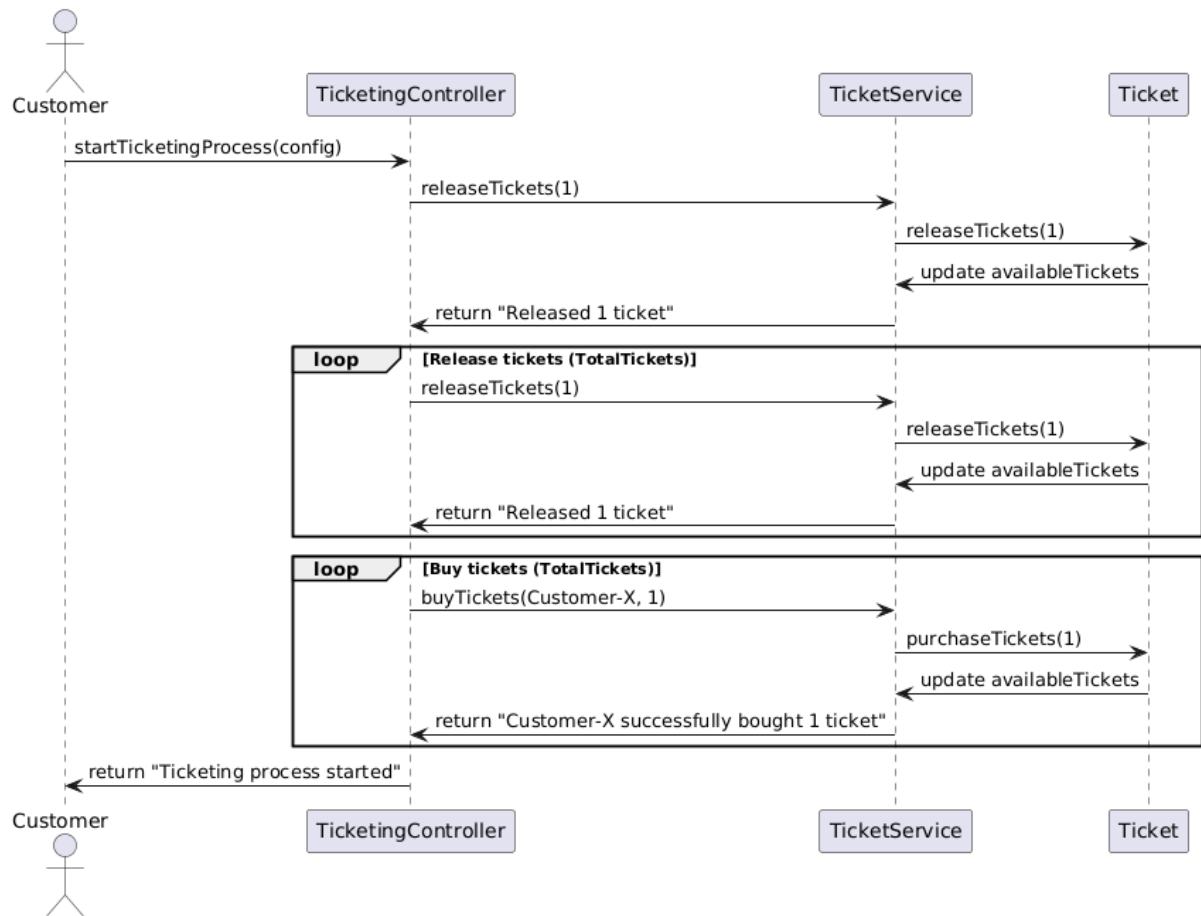
Module code: 5COSC019C

Module leader: Poravi Guganathan

01.Class Diagram

Configuration

+int totalTickets
+int ticketReleaseRate
+int customerRetrievalRate
+int maxTicketCapacity

+loadConfiguration() : void
+saveConfiguration() : void

Vendor

+String vendorId
+int ticketsPerRelease
+int releaseInterval
+TicketPool ticketPool

+run() : void

Customer

+String customerId
+int retrievalInterval
+TicketPool ticketPool

+run() : void

Dependency

Association

Association

TicketPool

+List tickets
+int maxCapacity

+addTickets(tickets: List) : synchronized void
+removeTicket() : synchronized Ticket
+getTicketCount() : int

02.Sequence Diagram

Customer

| TicketingController | TicketService | Ticket |

Customer → TicketingController: startTicketingProcess(config)

TicketingController → TicketService: releaseTickets(1)

TicketService → Ticket: releaseTickets(1)

Ticket → TicketService: update availableTickets

TicketService → TicketingController: return "Released 1 ticket"

loop [Release tickets (TotalTickets)]

TicketingController → TicketService: releaseTickets(1)

TicketService → Ticket: releaseTickets(1)

Ticket → TicketService: update availableTickets

TicketService → TicketingController: return "Released 1 ticket"

loop [Buy tickets (TotalTickets)]

TicketingController → TicketService: buyTickets(Customer-X, 1)

TicketService → Ticket: purchaseTickets(1)

Ticket → TicketService: update availableTickets

TicketService → TicketingController: return "Customer-X successfully bought 1 ticket"

TicketingController → Customer: return "Ticketing process started"

Customer

| TicketingController | TicketService | Ticket |

Test Case

Test Case ID	Test Case Name	Preconditions	Input Data	Expected Output	Actual Output
TC1	Release Single Ticket	Application is running and ticketing process is initialized	count = 1 (Release 1 ticket)	"Released 1 ticket"	✓
TC2	Release Multiple Tickets	Application is running and ticketing process is initialized	count = 5 (Release 5 tickets)	"Released 5 tickets"	✓
TC3	Buy Single Ticket - Success	At least 1 ticket is available	customer Name = "Customer-1", count = 1	"Customer-1 successfully bought 1 ticket."	✓
TC4	Buy Single Ticket - Insufficient Tickets	No tickets are available	customerName = "Customer-2", count = 1	"Not enough tickets available for Customer-2"	✓
TC5	Check Available Tickets	Tickets have been released	N/A	availableTickets = 100 (if no tickets bought yet)	✓
TC6	Buy Multiple Tickets - Success	Enough tickets are available	customerName = "Customer-1", count = 3	"Customer-1 successfully bought 3 tickets."	✓
TC7	Buy Multiple Tickets - Insufficient Tickets	Not enough tickets are available	customerName = "Customer-1", count = 10	"Not enough tickets available for Customer-1"	✓

Appendix