University of British Columbia, Department of Computer Science

CPSC 304

Cover Page for Project Part 1 Proposal

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Group Members:

Name	Student Number	CS Userid	Tutorial Section	Email Address
Raghav Thakur	60250157	f4l0b	T1B	raghav.thakur.rt@gmail.com
Jacques Marais	17372079	r4n6	T1G	j.marais@alumni.ubc.ca
Daniel Ng	57421133	a1c9	T1E	dandanmng@gmail.com
Ze Yu Li	49330160	o0w0b	T1A	kevinli19980207@gmail.com

By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above.

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

Bike Sharing Project

The domain of the application is a bike sharing system; more specifically, a company that provides publicly accessible bikes that can be rented by anyone with or without a membership. We will focus on the system involved in renting, returning, and addressing issues with the bikes.

The aspects of the company that we will be modeling will be about members renting bikes, ending their ride, and reporting maintenance issues with the bike. This includes things like the member's account and the virtual "wallet" associated with their account. Information specific to the member (e.g., name, address, email, phone number etc.) will be recorded. The company will accept credit card payment, and this information will be stored in the member's account so that they can easily load money into their wallet. Information specific to bikes (e.g., ID, make, model, a flag to indicate whether it needs maintenance, and its current location) will be recorded. There will be different types of bikes, such as standard bikes, premium bikes with a basket, and mountain bikes. There will be regular members as well as premium members. To be a premium member, a member pays a monthly fee. They still have to pay the bike rental fees, but then the premium membership allows them to collect points on their rentals which can then be used toward future rentals.

There will be three different classes of users of the system: members, customer support employees, and bike maintenance employees. The members will be able to load money into their wallet, upgrade to a premium membership, see their rental history, see the locations of available bikes, report an issue with a bike after renting it, and report an issue with a bike before renting it (if they arrive at a bike and notice a problem prior to activating the rental). Members will also be charged on their use of time for their rental and can choose to have a copy of their receipt emailed to them. It should be noted that members will not be able to reserve the bikes and a rental of a bike is on a first come first serve basis. Bikes that have been flagged with a maintenance issue will be unavailable for rental until a maintenance employee has resolved the issue status. Members will also be able to update their personal information and their password. Customer support employees will be able to access all of the members' data (rental history, premium membership information, and personal information) and all bike data, including the ability to view (but not resolve) bike issues reported by members. Customer support employees will be able to reset a member's password but may not see the password, employees will not be able to see the details of a member's payment option such as their credit card number, and can provide redemption points for any inconveniences caused by maintenance or problems during the members rental. Bike maintenance employees will be able to access bike locations and are the only ones who can add/remove bikes and resolve bike issues reported by members, they will not be able to view any personal information of members. It should be mentioned that there will be a system administrator who can add/remove employees and can reset their passwords.

This project will be done using the CS department's Oracle database system and will be utilizing Java and JDBC. We do not anticipate using any special software or hardware but are considering hosting the rental system either on the CS department's servers or a private

website. Since we do not actually have real-time location data for bikes, we will hardcode the location data into the database, and these locations will be shown on the map.