

# CS22510 - Assignment 1

## Runners and Riders - "Out and About"

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## 1 Outline of Programs

This section of the document provides a brief outline of each of the three programs included as part of this project. This includes a discussion of the basic structure, design and operation of each application.

### 1.1 Event Creation Program

The event creation program is a command line based application written in C++. Its purpose is to create the event, courses and entrants file for each event. The design of the application allows the user to create multiple events at the same time, rather than having to make each event in serial. This includes the functionality to create different course and entrants associated with different events. Each event also expects a nodes file to be given when creating the event, allowing different events to work with different sets of allowed nodes. The user is also able to view an event by selecting the relevant option from the main menu.

Since lists of courses and entrants are associated with each event, I decided that the best approach would be to allow the user to create all the data about an event, then write it to file, rather than creating each of the files one at a time. When the user chooses the option to write an event, a new folder is created with the name of the event as the name of the folder. Inside the folder the event, entrants and courses files are written.

### 1.2 Checkpoint Manager Program

The checkpoint manager program is written in Java and provides a Swing based GUI to allow the user to easily update entrants out in the field. This program accepts the required files (entrants, courses, nodes, time and log files) as command line arguments using flags for each file.

The checkpoint manager program allows a race marshal to update the location of the entrants as they arrive at the various checkpoints on the course. Entrants are automatically excluded if checked into a checkpoint they should not of visited. The GUI also provides an option for marshals to excluded entrants based on failing a medical checkpoint. When an entrant is excluded, they are automatically removed from the list of available entrants.

### 1.3 Event Manager Program