Don't Crash Manual

Team BHD

1 Running the game

1.0.1 Using Ant

The easiest way to build and run the game is to use the Apache Ant Java build system. It can be downloaded from the website linked above, or installed through a package manager, such as apt-get on Ubuntu, brew on Mac, or cinst on Windows.

Once Ant is installed the game can be launched by opening a terminal window in the project directory and then executing `ant`, which will automatically build and run the game (to just build without launching run `ant build`).

The included unit tests can be run with `ant test`. Running `ant report` will generate a html version of the test report within the junit directory.

The `ant javadoc` command will generate JavaDoc documentation within the doc directory.

The `ant clean` command will clean-up the working directory, by removing the generated binaries, JUnit reports, and JavaDoc documentation.

1.0.2 Using Eclipse

The following instructions assume that Eclipse is already installed and configured on your computer. If not, it can be downloaded by following instructions on the project website.

First, we'll need to import the downloaded project into Eclipse: In the main menu go to *File > Import. . .* and in the dialog box that appears expand the "General" category and double-click "Existing Projects into Workspace". On the next screen click the *Browse* button next to "Select root directory" and find the directory containing this readme file. Then leave all the checkboxes in the bottom half of the window unticked and click *Finish*.

To run the game, select the top-level "Game" item in the Package Explorer on the left-hand side of the screen and then go to *Run > Run Configurations*. In the window that appears, expand the "Java Application" item in the left-hand column and then double click on the "game" item beneath it.

To run the tests go to the same dialog box and double-click the "tests" item within the "JUnit" category.
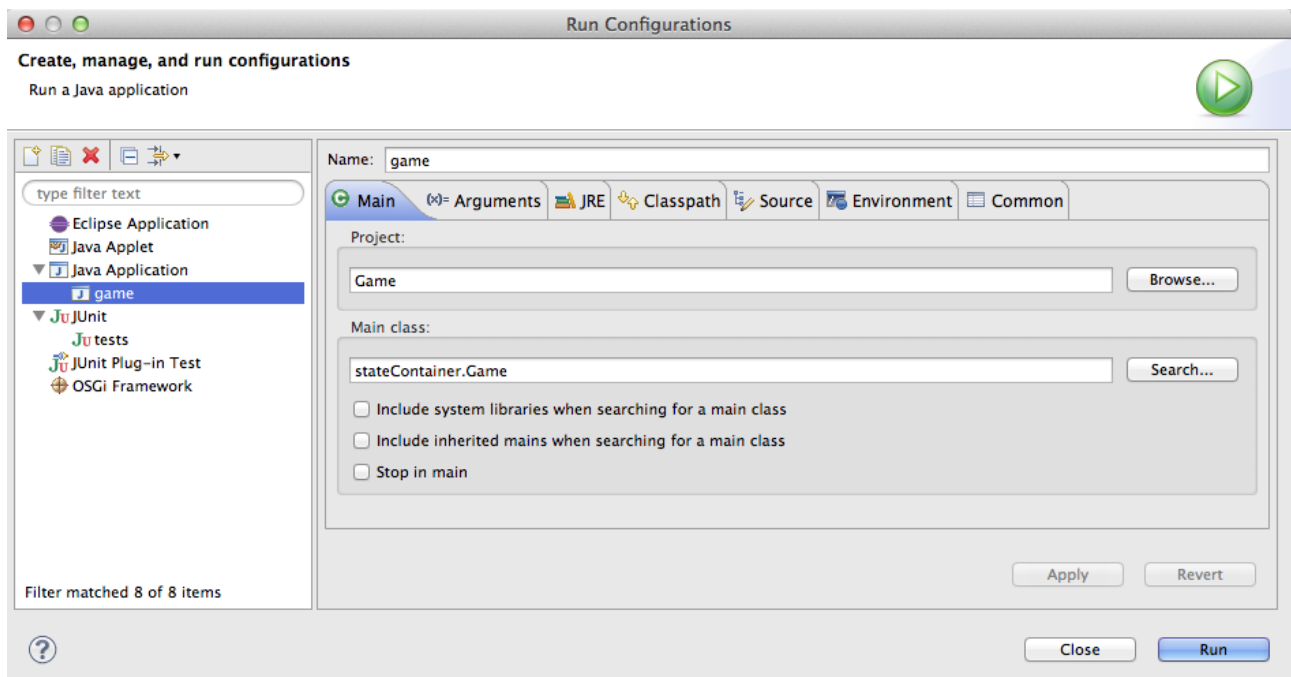

Figure 1: The Run Configurations dialog: Click the blue *Run* button to launch the game

2 Menu screens

Figure 2: The main menu screen

Once the game has finished loading, the first screen you will see is the main menu, as pictured above.

Clicking on the **Challenge Mode** button will launch the single-player game, in which the objective is to gain as many points as possible before a crash occurs.

The **Versus Mode** button will start the multi-player experience, in which the first player to 3000 points will be victorious.

The **Help** button will open this user manual.

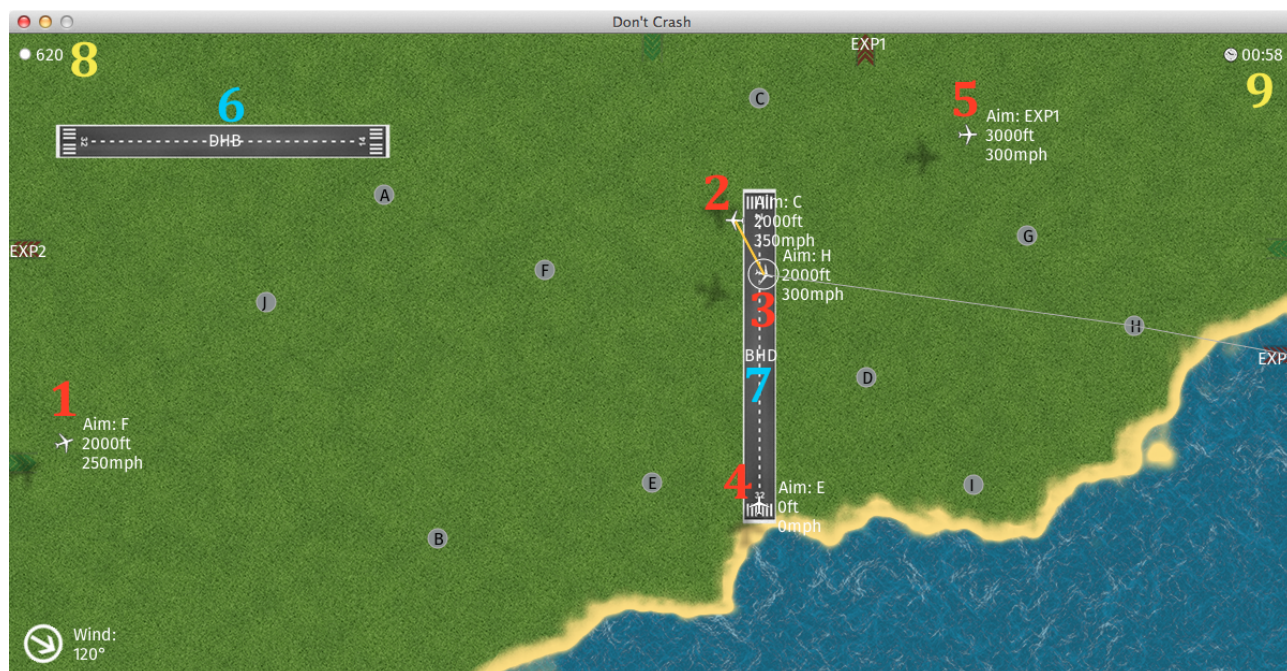Finally, clicking **Quit** will close down the game.

3   Basic concepts

Figure 3: The Challenge Mode game screen

3.1   Flights

Each flight is shown by a plane icon on the game screens (next to the red numbers in the image above), with the next waypoint on its flight-plan, current altitude and current speed shown on its right-hand side.

The currently selected flight is surrounded by a circle (flight 3 is selected in the above image) and can be commanded to turn left and right and to increase and decrease its altitude and speed using the buttons detailed in the Controls section of this manual. In normal flight conditions the minimum altitude for flights is 1000ft, the maximum altitude is 5000ft and the speed is always within the range of 200–400mph. Lines showing the flight-plan of the current flight are also shown - you can see in the image above that flight 3 is scheduled to pass waypoint H and to leave the airspace via EXP3.

It is possible to cycle between flights using the *Next Flight* and *Previous Flight* buttons.

3.2   Waypoints

As touched on above, the airspace is populated by eight waypoints, which are shown as grey circles containing their associated letter. The main way in which points are gained is by piloting each flight through the waypoints on its flight-plan, with up to 100 points available for each waypoint visited, depending on how precisely the waypoint is overflown. 50 points are deducted if a flight leaves the airspace without having completed its assigned route.

3.3   Take-Off and Landing

The two airports, known by their three-letter codes DHB and BHD, are shown as numbers 6 and 7 in the image above. New flights will appear on the ends of the airport runways, and can be commanded to take-off using the *Airport* key. Flight 4 in the image above is waiting to be told to take-off.

Flights can land at an airport if they are lined-up over the runway, and are already flying at their minimum altitude (1000ft) and speed (200mph). The words "Ready to land" will appear below the flight's airspeed when this is the case. Flights can land from either direction (i.e. from both the North and the South for BHD and from both the East and the West for DHB) and landing is also initiated by the *Airport* key. Some flights are

4

scheduled, by their flight-plan, to land at an airport but all flights are capable of landing if instructed to by the player. Pressing the *Airport* key while landing is in progress will abort the landing.

3.4   Timer and Scores

Scores are shown in the top-left corner of the screen, as indicated by the number 8 on the image above. The time elapsed since the beginning of the game is shown on the top-right (next to number 9 on the image) of the screen. Every 15 seconds, points will be awarded and the rate at which new flights appear will be increased slightly.

3.5   Separation Rules

As in real life, in our game there are minimum distances (known as separation rules) that an air-traffic controller must leave between flights. If two flights become too close an orange line will be drawn between them (see flights 2 and 3 in the image above) and, in the worst-case scenario, a collision may occur if the flights become closer still. In Challenge Mode, the game will end once a collision occurs. The lower the difficulty level selected at the beginning of the game, the closer two planes are allowed to come before a crash is deemed to have occurred.
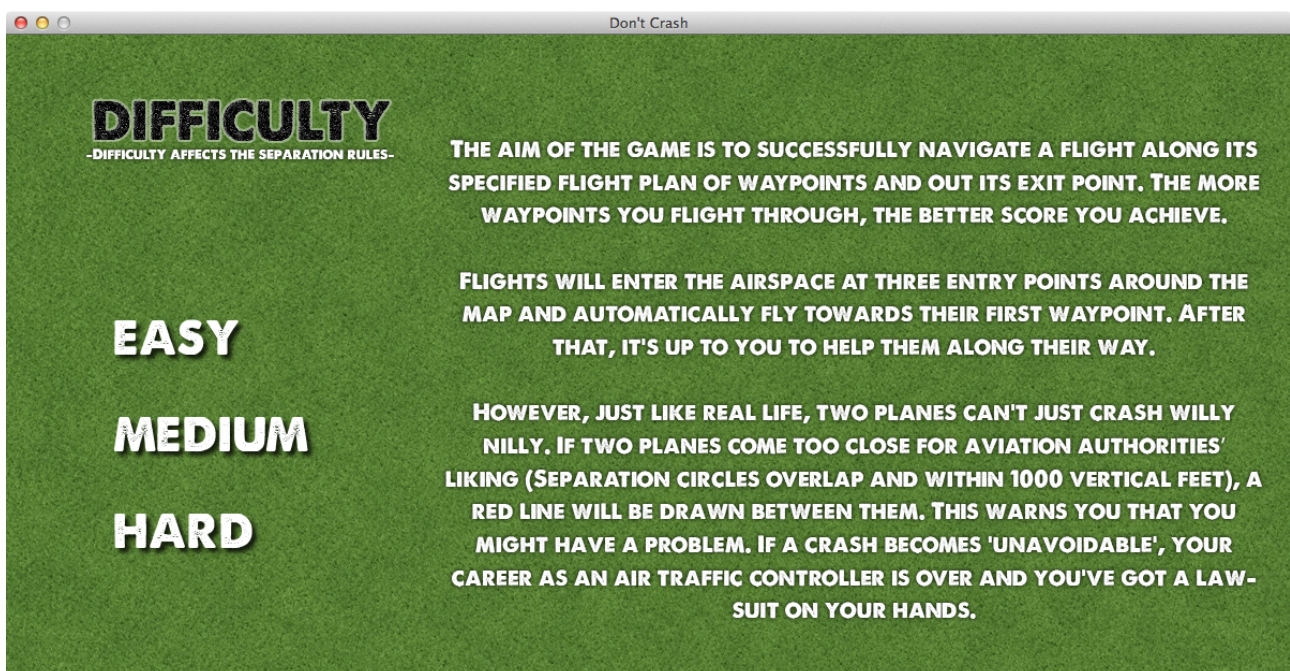

Figure 4: The difficulty selection screen for Challenge Mode
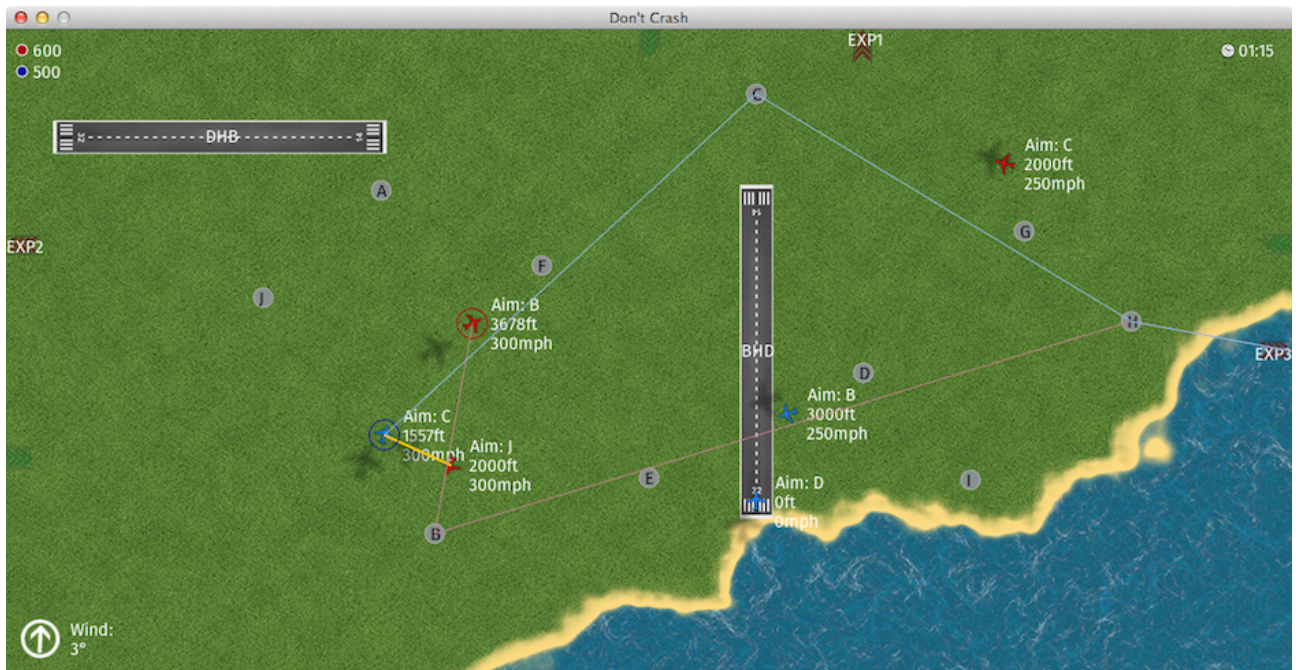
4 Multiplayer Concepts

Figure 5: A Versus Mode game in progress. Red player currently has a narrow lead.

4.1 Aim of the Game

In Versus Mode, the first player to reach 3000 points will be declared the winner. Unlike in Challenge Mode, a crash between two flights does not end the game, but there will be a severe penalty of 500 points applied to the owner of each of the affected flights. If both flights are owned by the same player, that player will lose 1000 points. Otherwise, points are awarded for passing waypoints in the same way as the single-player game.

4.2 Controls

Each player has their own flights (colour-coded either red or blue), and their own full set of keyboard controls, as detailed in the Controls section of this manual. Generally, red player is the player who sits on the left-hand side of the keyboard, while blue player sits on the right. Each player has their own selected flight, indicated by a colour-coded circle.

4.3 Handover

It is possible for either player to handover control of a flight to the other, in a purely unilateral manner, by pressing their own *Handover* key. Although handover is instant, there is a cooling-down period after each handover, shown by a bar on the bottom-right of the screen during which time the affected player cannot give up any additional flights.

5 Controls

5.1 Key Reference

	Challenge Mode	Red Player	Blue Player
Turn Left	`A`	`A`	Left
Turn Right	`D`	`D`	Right
Climb	`W`	`W`	Up
Descend	`S`	`S`	Down
Accelerate	`]`	`E`	`]`
Decelerate	`[`	`Q`	`[`
Next Flight	`.`	`C`	`.`
Previous Flight	`,`	`X`	`,`
Airport	`L`	`V`	`L`
Handover		`B`	`;`

5.2 Pausing the Game

In both game modes it's possible to pause the game by pressing the `P` key on the keyboard.

6 Help & Feedback

Don't Crash was developed by Team BHD. Feel free to contact us on teambhd-group@york.ac.uk if you have any questions or comments regarding the game.

7 Acknowledgements

This manual includes some content taken from the project Readme file, which was itself largely unchanged from its Assessment 3 equivalent.

Acknowledgements for the game itself can be found on the [Attribution page](#) on our team website.

The Markdown source files for this manual can be found in the [assessment4-manual repository](#) on Github.