

TEST PLAN

1 TEST PLAN IDENTIFIER **MASTER1**

2 RELATED DOCUMENTS

[1] Specification Document (Assessment 1 Deliverable)

- Requirements
- Project design
- Project plan

[2] IEEE. "Test Plan Outline (IEEE 829 FORMAT)". Available:

<http://www.computing.dcu.ie/~davids/courses/CA267/ieee829mtp.pdf>

3 INTRODUCTION

This is the master test plan for the Trains Across Europe (TaxE) game. This plan will address the features implemented in the first iteration of the game only. The majority of testing will be done alongside implementation in order to meet the strict project deadline.

4 SOFTWARE RISK ISSUES

We have relied on libraries from both the Gradle and LibGDX frameworks to ease the implementation of many of the graphical aspects of the game. We are therefore unable to test details within these external libraries.

5 FEATURES TO BE TESTED

The following is a list of the features to be focused on during this phase of testing, extracted from our system requirements:

1. Graphical user interface
2. Game map (Cities and junctions)
3. Resource management
4. Routing system
5. Absolute goals system

6 FEATURES NOT TO BE TESTED

The following features, that appear in the original specification, will not be included in this test plan; as they are to be included in the next iteration of the game:

1. Obstacles
2. Scoring
3. Quantifiable goals

7 APPROACH

We will make use of a mixture of testing techniques in order to test comprehensively:

- Unit testing will be performed to test specific code where possible; we will make use of the JUnit testing framework supported by both the Eclipse and IntelliJ IDEs.
- System testing will be performed to test the system more generally to make sure that the requirements are met from a user standpoint, this will be achieved by running the application and performing tests manually.

8 ITEM PASS CRITERIA

- The unit testing will be complete once all of the JUnit tests have passed, and we can therefore expect a working implementation.
- We will class system testing as complete once we are confident that all of the requirements that we set out to test in this iteration are fulfilled consistently.

9 TEST DELIVERABLES

The following are what we expect to have produced by the end of testing:

- Evidence of testing
- Review of testing

10 REMAINING TEST TASKS

As this test plan is for the first iteration of our game, it does not cover any features that are scheduled for future iterations, as listed in section 6. We can therefore say that there are several remaining tasks to be included in the next test plan, which we can expect to cover:

1. Obstacles
2. Scoring
3. Quantifiable goals

11 SCHEDULE

The timescale for this iteration of the project is 10 weeks and the testing must also be completed within this timescale. Therefore, much of the testing must be completed alongside implementation.

We can expect the testing schedule to reflect that of the more general project plan, which appears in our specification document.

EVIDENCE OF TESTING

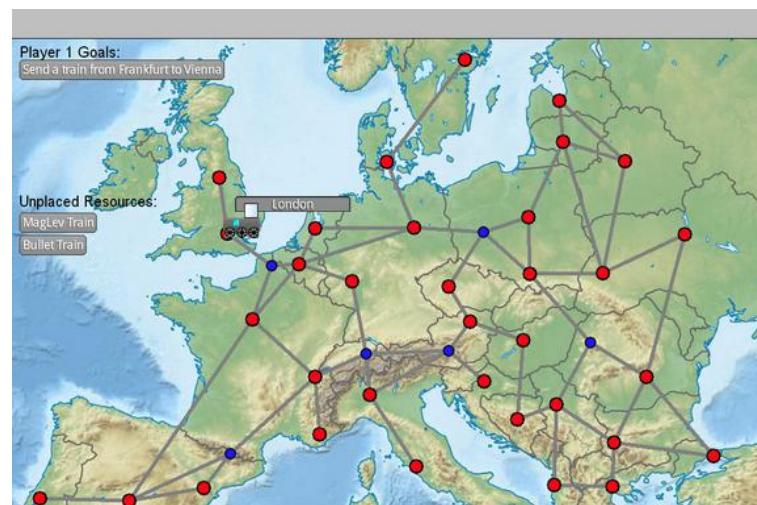
1 UNIT TESTING

Test name	Test Description	Result
testInitialisePlayers	Assert that the current player has both goals and resources	Pass
testPlayerChanged	Get number of resources and goals of current player. End turn twice to return to initial player Assert that number of resources and goals has increased	Pass
testGetCurrentPlayer	Get current player then end turn Assert that new player is not equal to the new current player	Pass
testAddResourceToPlayer	Try to increase the resources past the maximum number of resources Assert that the number of resources is equal to the maximum number of allowed resources	Pass
testDoesConnectionExist	Use a connection between two stations that does exist and assert that it does Use a connection between two stations that does not exist and assert that it doesn't	Pass

canReadFile	Pass a json file to the file handler Assert a statement about the length of the file	Pass
goalManagerTest	Create a train and two stations Create a goal for moving a train between these stations Create a route for the train between these stations End turn twice Assert that goal has been completed	Pass
testTurnNumber	Store the value of the turn number End turn Assert that the current turn number is greater than previous turn	Pass
stationsTest	Create a test station at a specific point on the map Assert that the station location is equal to the specified point Assert that the station name is equal to the name assigned for it	Pass
finalDestinationTest	Create two stations Add these stations to a route Assert that the route contains two stations Assert that the second station is the final destination in the route	Pass
addStationAndConnectionTest	Get number of current stations on map Create two new station Assert that number of stations has increased by two Add connection between two new stations Assert that connection exists between the new stations	Pass

2 SYSTEM TESTING

Test ID	Test Description	Result
1	Starting the game <ul style="list-style-type: none"> On the splash screen the start game button is pressed [1] Game map is shown with player one turn underway [2] 	Pass
Evidence		
[1]		[2]
2	Placing a resource <ul style="list-style-type: none"> Select a train from the left hand side menu [1] Click place at station [2] Select a station on the map [3] The station now shows that one train resides there [4] 	Pass
Evidence		
[1]		



Test ID	Test Description	Result
3	<p>Planning a route</p> <ul style="list-style-type: none"> • Click on a city with a train [1] • Click on the train you want to route [2] • Select choose a route [3] • Click on the city/cities in the order you wish to visit [4] • Click on route complete [5] 	Pass
Evidence		
[1]		
[2]		
[3]		
[4]		
[5]		

Test ID	Test Description	Result
4	Dropping a resource <ul style="list-style-type: none"> Click on the train you want to drop [1] Click drop [2] Train is no longer in list of resources [3] 	Pass

Evidence

[1]



[2]



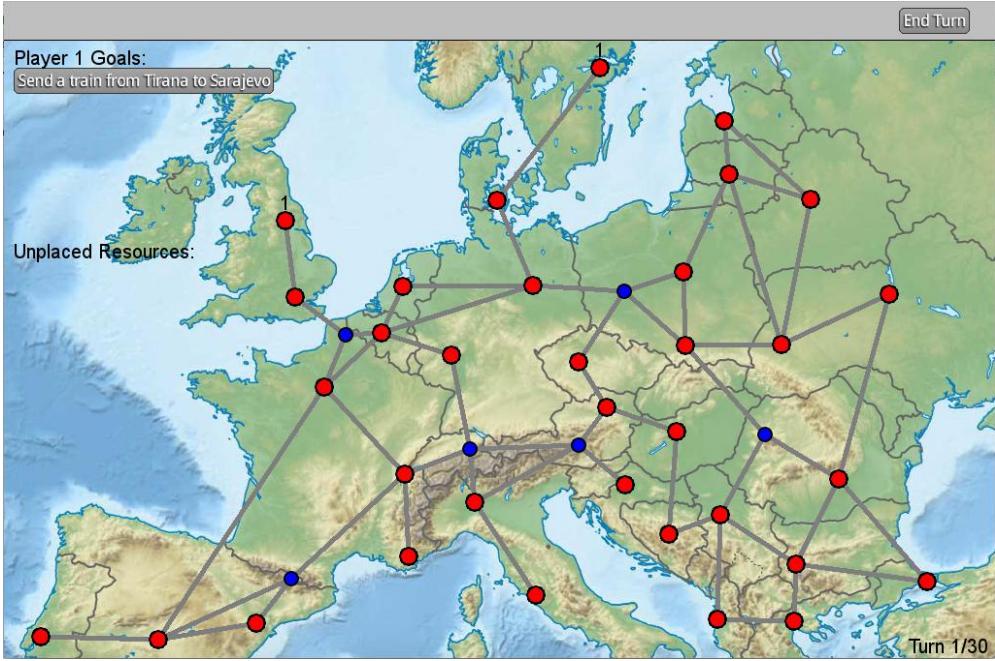
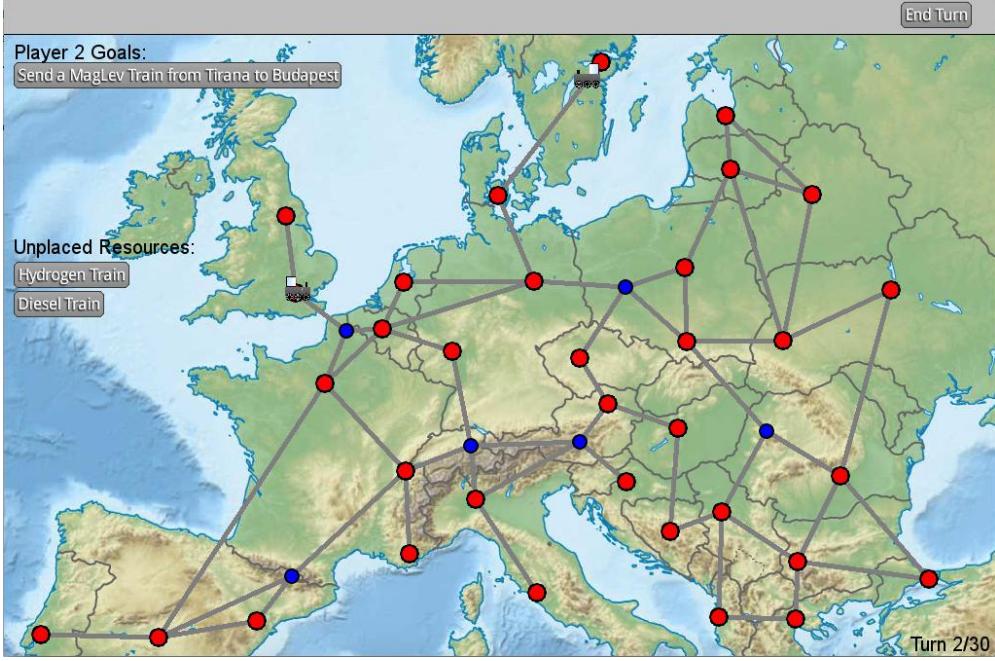
[3]



Test ID	Test Description	Result
5	Notify user when connection doesn't exist <ul style="list-style-type: none"> Click on a station not directly linked to the origin station [1] 	Pass

Evidence



Test ID	Test Description	Result
6	Time progresses when turn ends <ul style="list-style-type: none"> • Press end turn button [1] • Turn number has been incremented [2] 	Pass
Evidence		
 <p>[1]</p>  <p>[2]</p>		

Test ID	Test Description	Result
7	<p>Completing a goal</p> <ul style="list-style-type: none"> • Select the appropriate route for the train to complete the goal [1] • End turn to progress time [2] • Train completes route [3] • User notified of goal completion [4] 	Pass
Evidence		
 <p>[1]</p>  <p>[2]</p>  <p>[3]</p>  <p>[4]</p>		

Test ID	Test Description	Result
8	<p>Resource and goal limit cannot be exceeded</p> <ul style="list-style-type: none"> Start the game and receive initial resources and goals [1] End turn to increase player resources and goals [2] Once number of goals = 3 end turn again [3] Player receives no more goals past 3 [4] Once number of resources = 7 end turn again [4] Player receives no more resources past 7 [5] 	Pass

Evidence

[1]



[2]



[3]



[4]

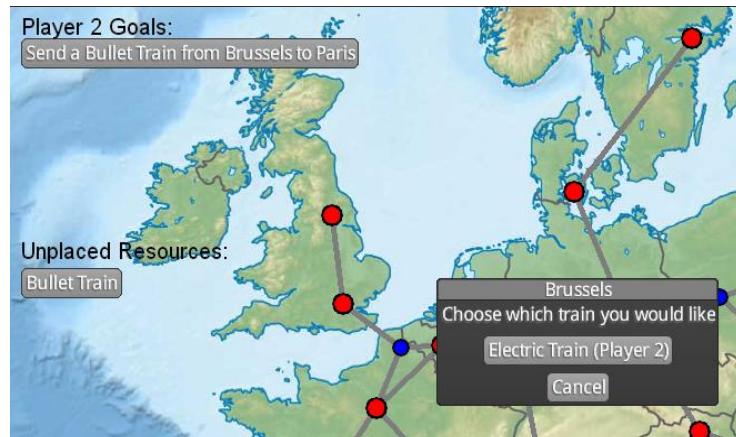


[5]



Test ID	Test Description	Result
9	<p>Goal must be completed with correct train (when specified)</p> <ul style="list-style-type: none"> Select the wrong train for the given goal [1] Select the appropriate route for the train to complete the goal [2] End turn to progress time [3] Train completes route and goal is not completed [4] 	Pass

Evidence



Test ID	Test Description	Result
10	<p>Adding multiple trains to stations</p> <ul style="list-style-type: none"> • Select a train and add it to a station with a train [1] • 2 is displayed above the station on the map [2] • Both trains are shown when the station is clicked [3] 	Pass

Evidence

[1]



[2]



[3]



Test ID	Test Description	Result
11	<p>Viewing opponents train at a station</p> <ul style="list-style-type: none"> • Select a station which has trains owned by the other player [1] • Click on the other players train [2] • Information is displayed about that train [3] 	Pass

Evidence

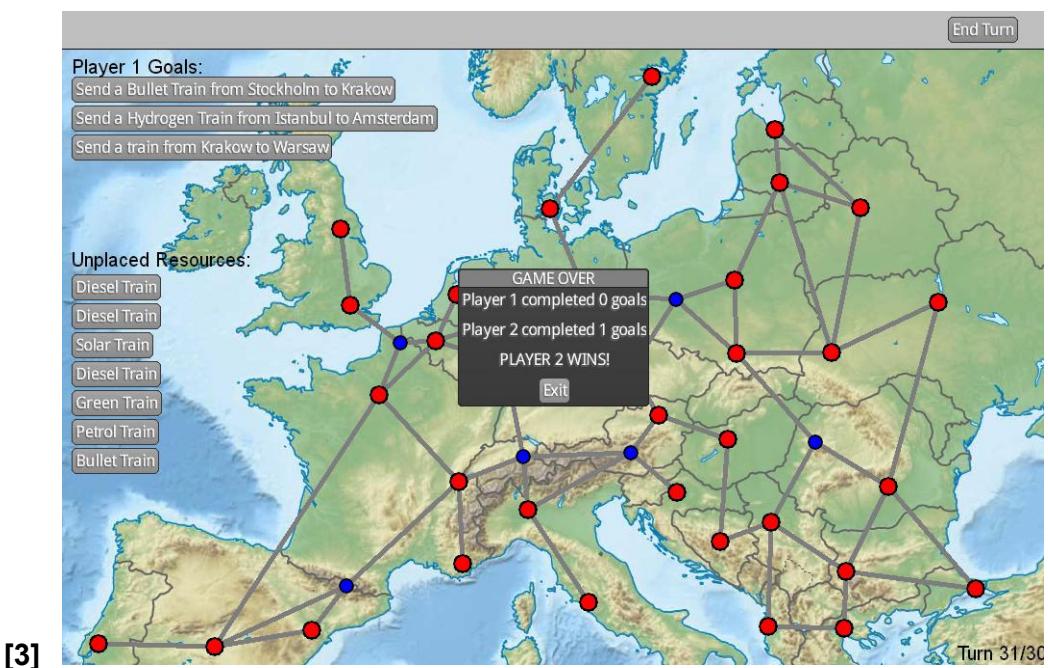
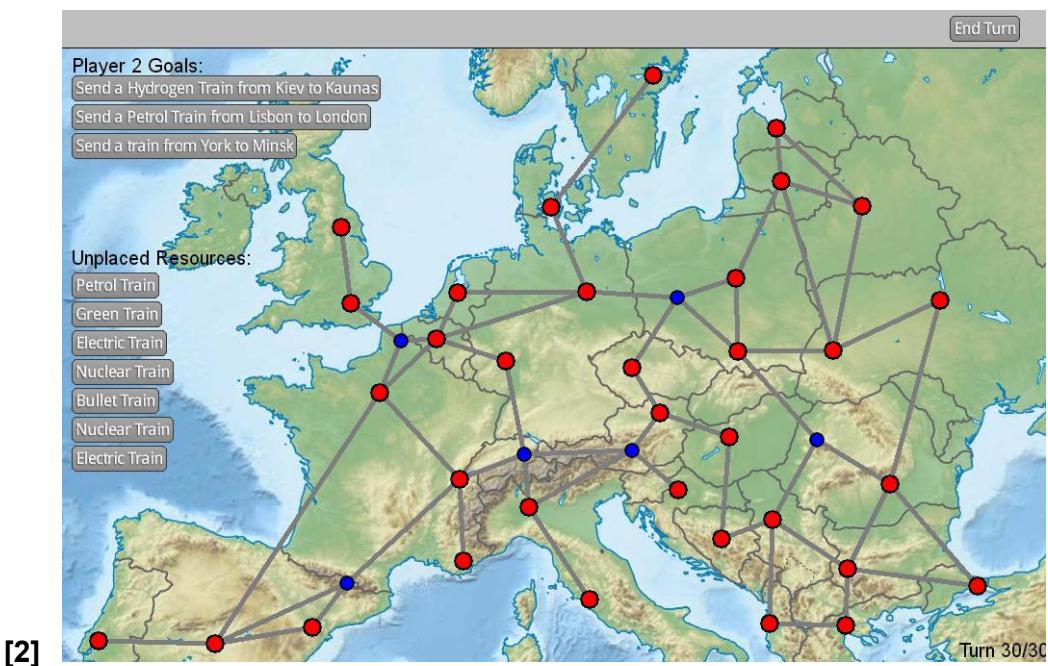
	<p>[1]</p>	
	<p>[2]</p>	
	<p>[3]</p>	
Test ID	Test Description	Result
12	<p>Train and goal removed after goal completion</p> <ul style="list-style-type: none"> Select the appropriate route for the train to complete the goal [1] End turn to progress time [2] Train completes route [3] Goal removed and train no longer at station [4] 	Pass
Evidence		
	<p>[1]</p>	



Test ID	Test Description	Result
13	Game can be won <ul style="list-style-type: none"> • Complete a goal for a player [1] • End turn to progress time until game ends[2] • Game winner is displayed [3] 	Pass

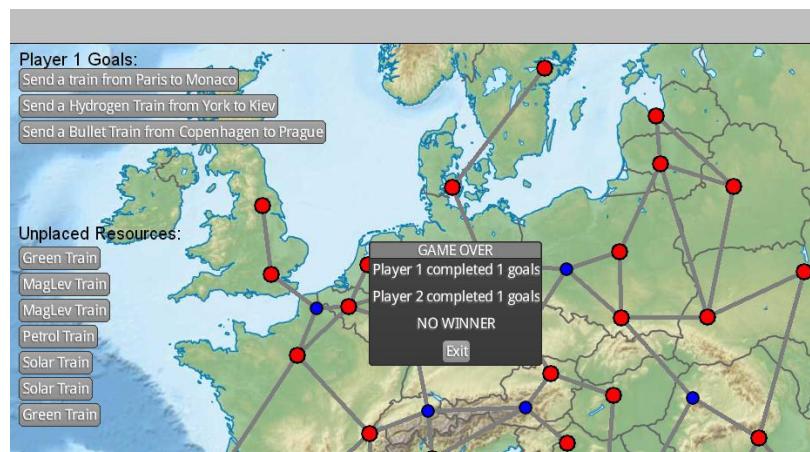
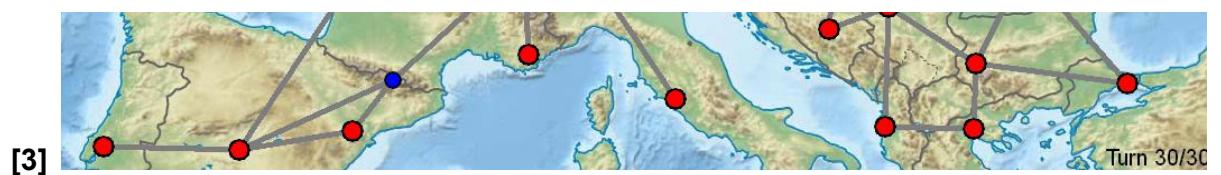
Evidence





Test ID	Test Description	Result
14	Game can be drawn <ul style="list-style-type: none"> • Complete a goal for player 1 [1] • Complete a goal for player 2 [2] • End turn to progress time until game ends [3] • Game shows “no winner” [4] 	Pass

Evidence



Test ID	Test Description	Result
14	Train collision <ul style="list-style-type: none"> Route a train through a junction [1] Route another train through the same junction such that they will both reach the junction at the same time [2] End turn to progress time until trains meet [3] Trains disappear [4] 	Pass

Evidence

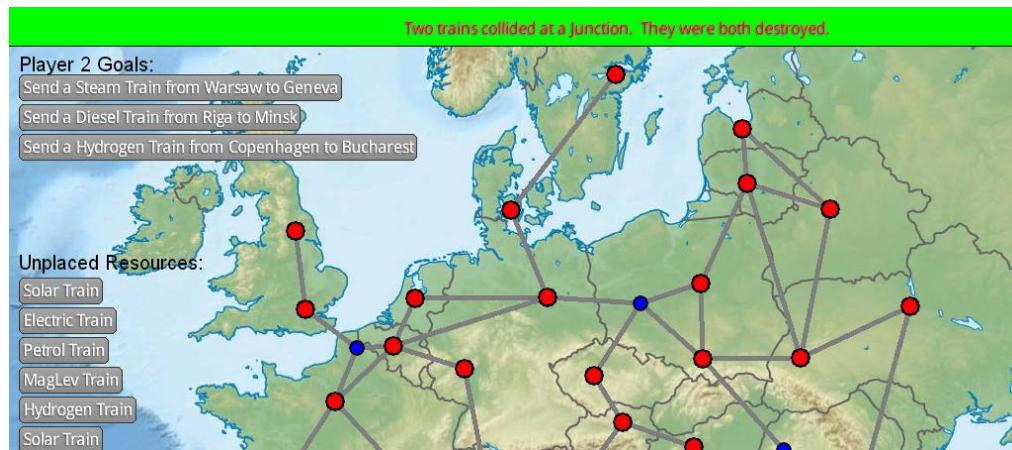
[1]



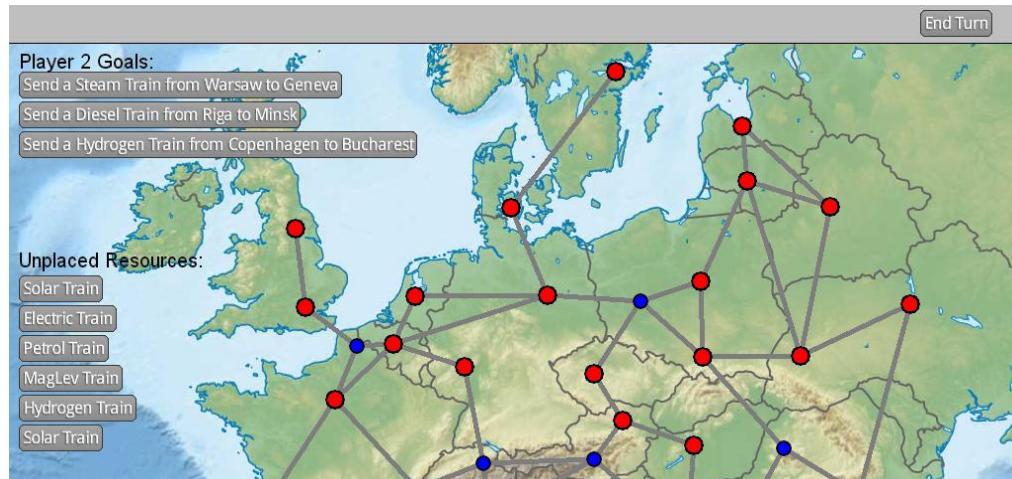
[2]



[3]

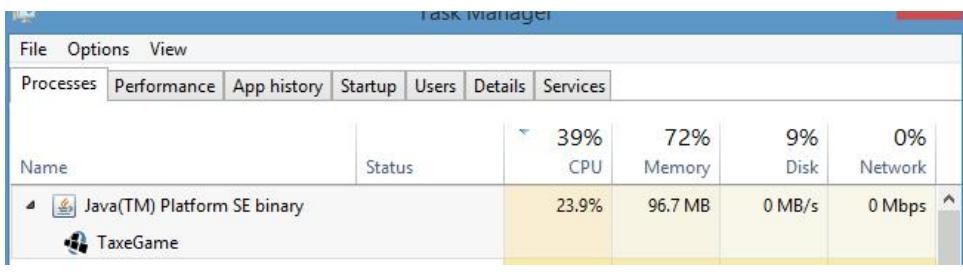


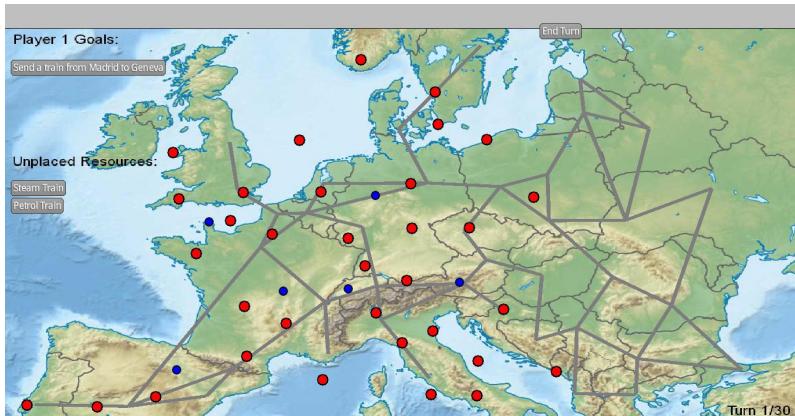
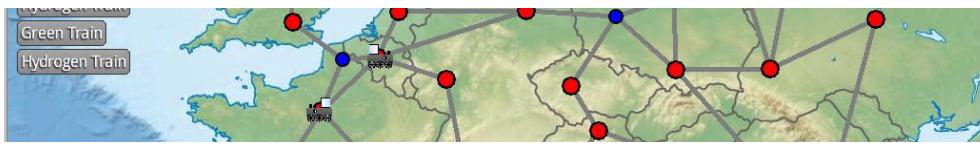
[4]



3 BUG REPORT

Bug ID	Bug Description
1	End turn button Pressing 'End turn' whilst routing a train causes player not to change but for new goals and resources to be issued
Resolution	
End turn button is no longer visible whilst routing or placing a train	
Bug ID	Bug Description
2	Trains stacking at a station Unable to select trains when multiple trains are at a station
Resolution	
Trains are hidden when at a station and the number of trains at the station is shown in place, a menu has been implemented for selecting trains at a station	
Bug ID	Bug Description
3	Routing not ending Route not finishing after user has completed describing it
Resolution	
Added a method to detect when user has finished routing	
Bug ID	Bug Description
4	Player resource not showing until turn ends Player resources not being shown during player turn
Resolution	
Added a show resources in the game screen class	
Bug ID	Bug Description
5	Station briefly disappears with dialog

	Stage not being drawn for a few frames while a dialog animation is being shown and also after all trains are dropped																		
Resolution																			
Override the LibGDX default show/hide dialog method where all actors fade in/out when dialog fades in/out																			
Bug ID	Bug Description																		
6	<p>Dropped trains still appear on map</p> <p>A trains actor isn't removed from the map when the train is dropped</p>																		
Resolution																			
Trains have reference to their relevant actor and remove actor from the stage when the train is dropped																			
Bug ID	Bug Description																		
7	<p>Placing trains</p> <p>Trains can be placed more than once and the dialog doesn't change once the train has been placed</p>																		
Resolution																			
The listener unsubscribes from the event after the train is placed																			
Bug ID	Bug Description																		
8	<p>Poor game performance</p> <p>Game using too much CPU due to excessive rendering at every frame</p>  <table border="1"> <thead> <tr> <th>Name</th> <th>Status</th> <th>CPU</th> <th>Memory</th> <th>Disk</th> <th>Network</th> </tr> </thead> <tbody> <tr> <td>Java(TM) Platform SE binary</td> <td></td> <td>23.9%</td> <td>96.7 MB</td> <td>0 MB/s</td> <td>0 Mbps</td> </tr> <tr> <td>TaxeGame</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name	Status	CPU	Memory	Disk	Network	Java(TM) Platform SE binary		23.9%	96.7 MB	0 MB/s	0 Mbps	TaxeGame					
Name	Status	CPU	Memory	Disk	Network														
Java(TM) Platform SE binary		23.9%	96.7 MB	0 MB/s	0 Mbps														
TaxeGame																			
Resolution																			
Actors are no longer added every time the render method is called. Actors are still added but they are stored in a group and this group is emptied and recreated every time render is called.																			

Bug ID	Bug Description
9	<p>Maximising game error</p> <p>When game maximised from the splash screen [1], upon selecting 'start game' the game map would load incorrectly [2]</p>  
Resolution	
The ability to maximise the game from the splash screen was removed.	
Bug ID	Bug Description
10	<p>Routing error</p> <p>Unable to route train through a station with a train over it</p> <p>e.g. Unable to route the train at Brussels through Paris due to an enroute train blocking Paris</p> 

Resolution

All other trains except the train being routed are now hidden when selecting a route

