|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Updated Statement of Requirements** | | | | | | | | | | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **Legend:** | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Changes | | | | | | | | | Additions | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | **ID** | | | | | | | |  |  |  |  |  |  |  | **Description** | | | | | | | | | |  | **Notes** | | | | | | | | | | | | | | |  |
|  |  |  | |  |  |  |  |  |  |  |  |  |  |  | |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_ | | | | | | | | | | | |  |  | User shall select four options from the welcome | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| start\_screen | | | | | | | | | | | |  |  | screen (Start, Options, Credits, Quit) (M). | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | |  |  |  |  |  |  |  |  |  |  |  | |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | |  |  |  |  |  |  |  |  |  |  |  | |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ~~UR\_save\_~~ | | | | | |  |  |  |  |  |  |  | ~~An option should be available to ‘save and quit’ the~~ | | | | | | | | | | | | | |  |  | ~~Close the game application to~~ | | | | | | | | | | | |  |  |  |  |
|  | ~~load\_quit~~ | | | | |  |  |  |  |  |  |  |  | ~~game upon entering the firestation. Any saved~~ | | | | | | | | |  |  |  |  |  |  |  | ~~quit without saving.~~ | | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | ~~games should be able to be resumed by a user.~~ | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | ~~(M)~~ | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | |  |  | | |  |  |  |  |  |  |  | | |  | |  |  |  |  |  |  | |  |  | |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |
|  | UR\_select\_ | | | | | | |  |  |  |  |  |  | User shall | | | ~~​open the map in the fire station and~~ | | | | | |  |  |  |  |  |  |  | Alternative: Complete games | | | | | | | | | |  |  |  |  |  |  |
|  | level | | |  |  | | |  |  |  |  |  |  | choose a level to play. (M) | | | | | |  |  |  |  |  | |  |  | |  | sequentially, restart when last | | | | | | | | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | level complete. |  |  | |  |  |  |  |  |  | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_pause | | | | | | | | | | | |  |  | User shall pause the game and bring up a menu | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | with options (S) | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | |  |  |  |  |  |  |  |  |  |  |  | |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_ | | | | | | | | | | | |  |  | User shall refill water by completing the | | | | | | | | | | | | | | |  | The mini game can’t be too | | | | | | | | | | | | | | |  |
| minigame | | | | | | | | | | | |  |  | increasingly challenging and engaging minigame. | | | | | | | | | | | | | | |  | difficult as this would take away | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | (M) | | | | | | | | | | | | | | |  | from the main game. | | | | | | | | | | | | | | |  |
|  |  |  | |  |  |  |  |  |  |  |  |  |  |  | |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | | |  | | | |  |  |  |  |  |  | | |  | |  | |  |  | |  | |  |  | |  |  | |  | |  |  |  |  |  |  | |  |  |  |  |  |
| UR\_instruct\_ | | | | | | | | | |  |  | User shall select and instruct their 2 fire engines - | | | | | | | | | | | | |  | For this sprint of the game we | | | | | | | | | | | |  |
|  | engines | | | |  | | | |  |  |  |  |  | attack the enemy (3 fortresses) and move around. | | | | | | | | | | | | |  | |  | are only implementing two fire | | | | | | | | | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | (M) | |  |  | |  | |  |  | |  | |  |  | |  | engines and three enemy | | | | |  |  |  |  |  | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | fortresses, which is less | | | | | than | | | |  | |  | |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | required for the final game. | | | | | | |  |  |  | |  | |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | | | | | | |  |  |  |  |  |  | | |  | |  | |  |  | |  | |  | | |  |  | |  | |  | |  | |  |  | |  | |  |  |  |
|  | UR\_seeHUD | | | | | | | | | |  |  |  | User shall see a HUD showing health, water | | | | | | | | ~~​and~~ | | | |  |  |  |  | We are no longer having this | | | | | | | | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | ~~minimap (C)~~ | | | | |  |  |  |  |  |  |  |  |  |  |  | because we can see the whole | | | | | | | | | | | | |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | map on the screen anyway. | | | | | | | |  | | |  | |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | However, the user will still be | | | | | | | | | | |  | | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | able to see their firetrucks | | | | | |  | | | | |  | | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | health and water. | |  | |  | |  | | | | | | | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | | | | | | |  |  | |  |  |  | | |  | | | |  |  | |  | |  | | |  |  | | | |  | | | | | | | | | |  |  |
| UR\_end\_ga | | | | | | | |  |  | User shall be notified when they win/lose a level, | | | | | | | | | | | |  | Alternative: automatically taken | | | | | | | | | | | | | |  |
|  | me\_ screen | | | | | | | |  |  | |  |  | i.e. when the fortress is completely flooded, all | | | | | | | | | |  | |  | | |  | back to the fire station. | | | |  | | | | | | | | | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | firetrucks are destroyed/fire station is destroyed(M) | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_refill\_ | | | | | | | | | | | |  |  | User shall know when they are close to needing to | | | | | | | | | | | | | | |  | Notification will not hinder the | | | | | | | | | | | | | | |  |
| warning | | | | | | | | | | | |  |  | refill or repair. (S) | | | | | | | | | | | | | | |  | users ability to see enemies. | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Notification is via the values | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | shown on screen. | | | | | | | | | | | | | | |  |
|  |  |  | |  |  |  |  |  |  |  |  |  |  |  | |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_strategy | | | | | | | | | | | |  |  | User shall strategise how to manage and deploy | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | their fire engines.(M) | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | |  |  |  |  |  |  |  |  |  |  |  | |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_attack\_ | | | | | | | | | | | |  |  | User shall be notified when the fire station is about | | | | | | | | | | | | | | |  | Changed the name of the | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| notification | | | |  | to be destroyed. (M) | | | | |  | requirement. | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_interest | | | |  | User shall be drawn in by the game, and not be | | | | |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | bored. (M) | | | | |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_fresh\_ | | | |  | User shall be able to start each level with full health | | | | |  | Alternative: they don’t and their | | | | | | | |  |
| health | | | |  | (C) | | | | |  | health level continues on after | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  | each level. | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_ease | | | |  | User shall be able to understand the game - be | | | | |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | able to finish without being confused by | | | | |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | mechanics. (M) | | | | |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UR\_music | Play music in the menu state. (C) | This is a requirement we added | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  | to make the game more | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | interesting. |  |  |  |  |  | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | |  |  |  | |  |  |  |  |  | |  | |  |  | |  |  |
| UR\_collisions | |  | The user shall not be able to pass through | |  | This is because it would make | | | | |  |
|  |  |  |  |  | buildings and other objects, other than other | | |  |  |  | the game boring if the user | | | |  |  | |  |  |
|  |  |  |  |  | firetrucks. Fire Trucks can pass through fire | | | trucks. |  |  | could just go through obstacles. | | | | | | |  |  |
|  |  |  |  |  |  |  |  |  |  |  | New requirement. | |  | | | | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

***Functional Requirements:***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ID** | |  | **Description and** ​***User Requirement****​***it Links to** | | | | |  |
|  | FR\_display\_timer | | System shall display a timer - countdown until aliens destroy the fire station. | | | | | |  |
|  |  |  | Show when timer is over. ​***UR\_attack\_warning*** | | | | | |  |
|  | FR\_auto\_save | | Between levels user’s progress is recorded and data shall be saved locally on | | | | | |  |
|  |  |  | system. ​***UR\_save\_load\_quit*** | | | | | |  |
|  | FR\_pause\_inlevel | | System shall be paused during play. This stops all movement of patrols and | | | | | |  |
|  |  |  | the timer. Menu pops up with options. ​***UR\_pause*** | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |
|  | FR\_save\_quit | System shall be able to save user progress at the end of the level. We do not | | | |  |
|  |  |  |  | save their current state half-way through the level. If they quit the level half | | |  |  |  |
|  |  |  |  | way through, they reset themselves upon that level upon revisiting. | |  |  | |  |
|  |  |  |  | ***UR\_save\_load\_ quit*** |  |  | | |  |
|  |  |  |  |  |  |  |  |  |  |
|  | FR\_auto\_repair | | Between levels damaged fire engines health are restored back to full | | | | | |  |
|  |  |  | automatically. ​***UR\_fresh\_health*** | | | | | |  |
|  | FR\_unique\_ | | Fire engines have unique spec - Volume of water, speed, range, delivery rate, | | | | | |  |
|  | engines | | max health. ​***UR\_strategy*** | | | | | |  |
|  | FR\_unique\_ | | Enemies will have unique spec - defensive weapons, weapon damage, | | | | | |  |
|  | enemy | | volume of water needed to flood. ​***UR\_strategy*** | | | | | |  |
|  | FR\_level\_ | | Levels shall be different to each other and intriguing. ​***UR\_interest*** | | | | | |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | gimmicks | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | FR\_enemies\_die | | | | | | | | | | Enemies shall evaporate (disappear) when they come in contact with water | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | and their health is zero. ​***UR\_instruct\_ engines*** | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | FR\_engine\_destr | | | | | | | | | | | | | System shall notify the user when their fire engine is destroyed. ​***UR\_seeHUD*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | oyed | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | FR\_6\_levels | | | | | | | | | | | | | The game shall include 6 levels of increasing difficulty. ​***UR\_select\_level*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  |  |  |  | |  |  |  |
|  |  |  | FR\_end\_game | | | | | | | | User wins if they deplete the health of the enemy bases and complete the | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | final level. User loses if all their fire engines are destroyed (all health levels | | | | | | | | | | | | | | | | | | | | | | |  |  | |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | are zero in a level). ​***UR\_ease*** | | | | | | | |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | FR\_new\_level | | | | | | | | | | | | | The system shall take the user back to the | | | | | | | | | | |  |  | |  |  |  |  | | ​when they have | | | | | | | | | |  |
|  |  |  | ​level select screen | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | completed a level. ​***UR\_end\_game\_screen*** | | | | | | | | | | |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | |  | |  |  |  |  |  |  |  |  |  |  |  | |  | |  | |  |  |  |  | | |  |  |  |  | |  | |  |  |  |
|  |  |  | FR\_open\_miniga | | | | | | | | | | | When user reaches the refill tile (bottom left corner of the map) the system | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | me | | | |  |  |  |  | |  | |  |  |  | shall start the minigame. ​**UR\_ minigame** | | | | | | | | |  | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | |  |  |  | |  | | |  |  |  |  |  |  |  |  |  |  | | | |  | |  |  |  |  | | |  |  |  |  | | | |  |  |  |
|  |  |  | FR\_play\_music | | | | | | | | | The system should play the music when the game enters the menu state. | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ***UR\_music*** | | |  |  |  |  |  | | | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | |  |  |  | | | | |  |  |  |  |  | |  |  |  |  | | | |  | |  |  |  |  | | |  |  |  | | | | |  |  |  |
|  |  |  | FR\_deny\_collision | | | | | | | | | | | | The system shall stop the user from moving through obstacles other than fire | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | s |  |  |  | |  |  |  | | | | |  |  | trucks. ​***UR\_collisions*** | | | | | |  |  | | | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | |  |  | |  |  |  | | | |  | |  |  |  |  | |  |  | |  | | | |  | |  |  |  |  | | |  |  |  | | | | | |  |  |
|  |  |  | FR\_game\_states | | | | | | | | | | | What is displayed on the screen and what the user can interact with is | | | | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | controlled by a game stack. The top of the stack is the current game state that | | | | | | | | | | | | | | | | | | | | | | | | | | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | the user is interacting with. ​**UR\_ start\_screen, UR\_save\_ load\_quit,** | | | | | | | | | | | | | | | | | | |  | |  | | | | | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **UR\_select\_ level, UR\_pause, UR\_ minigame** | | | | | | | | | | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | |  |  | |  |  |  | | | | | |  |  |  |  | |  |  | |  | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | ~~N~~ | | ​FR\_security | | | | |  |  |  |  |  |  |  | System should be able to store saved progress accurately. | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ***UR\_save\_load\_quit*** | | | | |  | |  | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | |  |  | |  |  | |  | | | | |  |  |  |  | |  | | |  | | | | | |  |  |  | | | | | |  | | | | | | |  |
|  |  |  | ~~N~~ | | ​FR\_precision | | | | | |  |  |  |  |  |  | Fire trucks positions after being moved should have a small error margin. | | | | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ***UR\_instruct\_engines*** | | | | | | |  | | | | | |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | ***Non Functional Requirements:*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **ID** | | | | | | | | |  |  |  |  |  |  |  |  | **Description** | | | | | | | |  |  |  | **Fit** | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **Criteria** | | | | | | | | | |  |
|  |  | | | | |  | |  |  | | | | | | |  |  |  |  | |  | | | | | | | | |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_user\_ | | | | | | | | | | | | | | | |  |  |  | Instructions for the game should be available to the | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| instructions | | | | | | | | | | | | | | | |  |  |  | user. ​***UR\_ease*** | | | | | | | | | | | | |  | |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | | | | |  | |  |  | | | | | | |  |  |  |  | |  | | | | | | | | |  |  |  | |  | | | | | | | | | | |  |
| NFR\_readability | | | | | | | | | | | | | | | |  |  |  | Users shall be able to read any text easily. ​***UR\_ease*** | | | | | | | | | | | | |  |  | Text legible from 5 | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | metres away. | | | | | | | | | | |  |
|  |  | | | | |  | |  |  | | | | | | |  |  |  |  | |  | | | | | | | | |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | | | | |  | |  |  | | | | | | |  |  |  |  | |  | | | | | | | | |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ~~NFR\_game\_~~ | | | | | | |  |  |  |  |  |  |  |  |  |  |  | ~~The user should understand the games focus and~~ | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ~~understanding~~ | | | | | | |  |  |  |  |  |  |  |  |  |  |  | ~~how to beat the game from the tutorial. ​~~***~~UR\_ease~~*** | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_menu\_ | | |  | Users shall be able to navigate the menu without any | | | | |  | Buttons on the | | | | | | | | | |  |  |  |  |  |  |  |  |
| understandable | | |  | prior experience. ​***UR\_ease,****​*​***UR\_startscreen*** | | | | |  | menu should | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | operate in < | | | | | 0.5 | | | | | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | seconds. User | | | | | | | | |  | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | taken to the next | | | | | | | | | | | | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | screen. |  |  |  |  | |  |  |  | | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  |  |  | | |  |  | |  |  |  |  |
| NFR\_save | System shall clearly outline to the user all the | | |  | In the user manual | | | | | | | | | | | | | | | |  |
|  |  |  |  | possible methods of saving. And also let the | | | user |  |  | and also clear | | | | | | | |  | | |  |  | |  |  |  |  |
|  |  |  |  | know how saving works with the game. | |  | |  |  | labelled ‘save’ | | | | | | | |  | | |  |  | |  |  | |  |
|  |  |  |  | ***UR\_save\_load\_quit*** |  |  | | |  | buttons when | | | | | | | | it is | | | | | | |  | |  |
|  |  |  |  |  |  |  |  |  |  | possible to save. | | | | | | | | | | | | | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_artwork | | |  | Colour scheme and artwork should be fun and | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | engaging. It shouldn’t hinder the users understanding | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | of the game. ​***UR\_interest*** | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_user\_ | | |  | User interactions with the game should be instant. No | | | | |  | User actions | | | | | | | | | | | | | | | | |  |
| interactions | | |  | delay. ​***UR\_instruct\_engines*** | | | | |  | displayed within | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  | <1 second. | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_error\_ prone | | |  | System shall not be broken by glitches. ​***UR\_ease*** | | | | |  |  | |  |  |  | |  |  | | | |  |  | | | | |  |
|  |  | 9/10 runs of the | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  | game should be | | | | | | | | | | | |  | | | | |  |
|  |  |  |  |  |  |  |  |  |  | free of glitches. | | | | | | | | | | |  |  | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_main\_ focus | | |  | Mini game shouldn’t distract the user from the main | | | | |  |  | |  |  |  | |  |  | | | |  | |  | | | |  |
|  |  | Should take less | | | | | | | | | | | | |  |
|  |  |  |  | objective of the game. ​***UR\_minigame*** | | | | |  | than 5 minutes. | | | | | | | | | | |  | |  | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_ingame\_ | | |  | Warnings directed towards the user should be easy | | | | |  |  | |  |  |  | |  |  | | | | | | | | |  |  |
|  |  | Text legible from 5 | | | | | | | | | | | | | | | |  |
| warning | | |  | to understand and read. ​***UR\_attack\_warning,*** | | | | |  | metres away. | | | | | |  |  | | | | | | | | |  |  |
|  |  |  |  | ***UR\_refill\_ warning*** | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_buttons | | |  | All buttons should be labelled and have a known | | | | |  | Labels should be | | | | | | | | | | | | | | | | |  |
|  |  |  |  | purpose to the user and be easily accessible. | | | | |  | legible from 5 | | | | | | | | | | | | | | | | |  |
|  |  |  |  | *UR\_ease* | | | | |  | metres away. | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_timer | | |  | User should be made aware when they have limited | | | | |  | Accuracy of timer | | | | | | | | | | | | | | | | |  |
|  |  |  |  | time left in the game. ​***UR\_attack\_warning*** | | | | |  | should be +/- 0.25 | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  | seconds | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_operators | | |  | System shall be operable by users with any level of | | | | |  |  | |  |  |  | | |  | | | |  | | | | | |  |
|  |  | Clearly labelled | | | | | | | | | | |  |
|  |  |  |  | gaming experience. ​***UR\_ease*** | | | | |  | with text legible | | | | | | | | | | |  | | | | | |  |
|  |  |  |  |  |  |  |  |  |  | from 5 metres | | | | | | |  | | | |  | | | | | |  |
|  |  |  |  |  |  |  |  |  |  | away. Not | | | |  | | |  | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  | technical | |  |  |  | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  | language. | |  |  | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NFR\_audit | | |  | System shall keep saved files. ​***UR\_save\_load\_quit*** | | | | |  | Keep these files | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  | for a day at least. | | | | | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NFR\_resume\_ time | | |  | System should load a saved game. | | | | Acceptable time of |  |
|  |  |  |  | ***UR\_save\_load\_quit*** | | | | 5 seconds |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| NFR\_saved\_ content | Saved content will be data about the level that a | |  |  |
|  |  |  |  | particular user has reached. Saved content will | | not |  |  |  |
|  |  |  |  | include where the user is up to in a particular level. | | |  |  |  |
|  |  |  |  | **UR\_save\_ load\_quit** |  | |  |  |  |
|  |  |  |  |  |  |  |  |  |  |