
Beta Milestone

Build Submissions

Installer

- If the build is not already pushed to the server it must be now
 - Should have an installer in the “Milestone builds” folder
- We aren't working on user stories now
- We aren't integrating the builds now
 - Use what we have in the master branch right now

Sprint Self Review

Previous sprint review

- Finalize Trello board
 - All user stories in final categories
 - Hours spent on all tasks entered
- Discuss work problems if there were any
 - If a user story estimate was off why was it off?

Quality Assurance

QA's goal

To make a ~~bug free~~ game

Common misconception

QA's goal

Get the product into an acceptable level of error

- This changes depending on the product being developed
- This is primarily influenced by the product's goals

QA process

QA process

Quality assurance is an iterative process

- Test
 - QA department finds bugs
 - Bug passes scrutiny
 - Passed to developers as tasks that need to be done (change requests)
- Fix
 - Developers fix the bugs
- Confirm
 - QA department confirm fixes
 - Return unfixed bugs back to developers
- Repeat until the game is sufficiently bug reduced and we have met the acceptable level of error

Why do we want dedicated testers?

It is very hard to look at your own game unbiased

- You want people who don't know what they are doing to test the game
- Allows the development staff to focus on implementing and fixing
 - Good for maintain momentum
 - Good for the company bottom line
 - Multiple testers for the cost of 1 programmer

Bugs

What ARE bugs

- The game did not behave according to the DEVELOPER intentions
- The game did not behave according to the PLAYERS intentions
- Incorrect information
- Failure to adhere to certification criteria (TRC)

What COULD be bugs

- The player cannot figure out how to do something
 - “Wait for a soul with a red crystal ondebora cliff.”= Equip the red crystal and kneel next to the cliff for 5 seconds for wind to move you to the other side
- The player can exploit mechanics to break game balance
- The game is too challenging or not challenging enough
- These all need to be taken into consideration in a case by case basis
 - These need an objective viewpoint (producer approval)

Reporting Bugs



Reporting bugs

There is a lot of information that needs to be conveyed when reporting bug

Player can not walk through door on second room of level 2

[in list](#) [Open](#)

☐ Recurring

Add #tags ▾

Spent / Estimate ▾

Labels

Found By

Build Found

C - Minor +

[John OLeske](#)

[Round 1](#)

Add

Members

Labels

Checklist

Due Date

Attachment

Power-Ups

Custom Fields

Actions

00:00:00s

Move

Copy

Description

Steps to reproduce:

- Select new game
- Continue to level two (Office space)
- Attempt to walk into the door in the second room

What was seen:

- Player collides with the door and wall but the door does not animate or allow the player to walk through.

What Was Expected:

- Player can enter the door or it is clear that the door can not be entered

Save

X

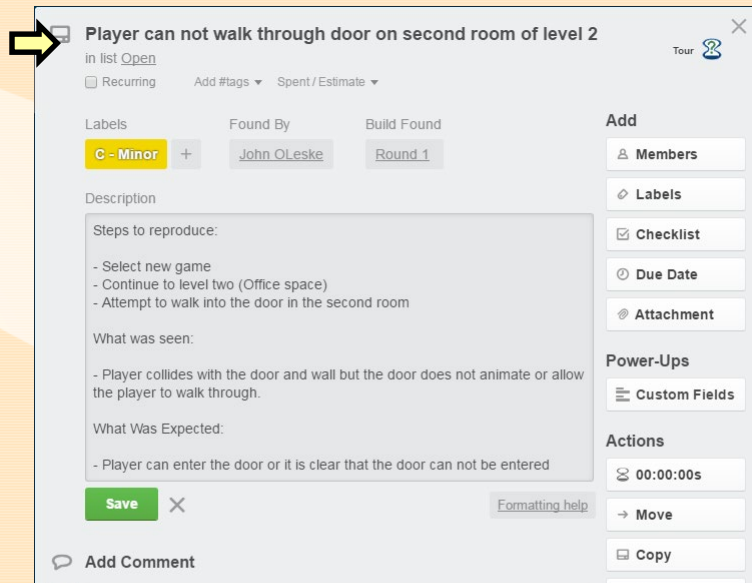
Formatting help

Add Comment

Reporting bugs

Summary of the issue

- Short clear description of the bug



Player can not walk through door on second room of level 2 Tour

in list [Open](#)

☐ Recurring Add #tags Spent / Estimate

Labels Found By Build Found

C - Minor + [John OLeske](#) [Round 1](#)

Description

Steps to reproduce:

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[Save](#) [Formatting help](#)

[Add Comment](#)

Add

- [Members](#)
- [Labels](#)
- [Checklist](#)
- [Due Date](#)
- [Attachment](#)

Power-Ups

- [Custom Fields](#)

Actions

- [00:00:00s](#)
- [Move](#)
- [Copy](#)

Reporting bugs

Summary of the issue

Bad

- “It crashed”
- “Doesn’t make sense”



Good

- “Crashes selecting new game after exiting game”
- “Player doesn’t have enough information to solve the puzzle on level 5”

A screenshot of a bug report form. A yellow arrow points to the title bar. The form has a title bar with a close button (X) and a 'Tour' link. Below the title bar, there are fields for 'Add #tags', 'Spent / Estimate', and 'Recurring'. The 'Labels' section shows 'C - Minor' with a plus sign. The 'Found By' field contains 'John OLeske'. The 'Build Found' field contains 'Round 1'. The 'Description' section has a text area with the following content:

Steps to reproduce:

- Select new game
- Continue to level two (Office space)
- Attempt to walk into the door in the second room

What was seen:

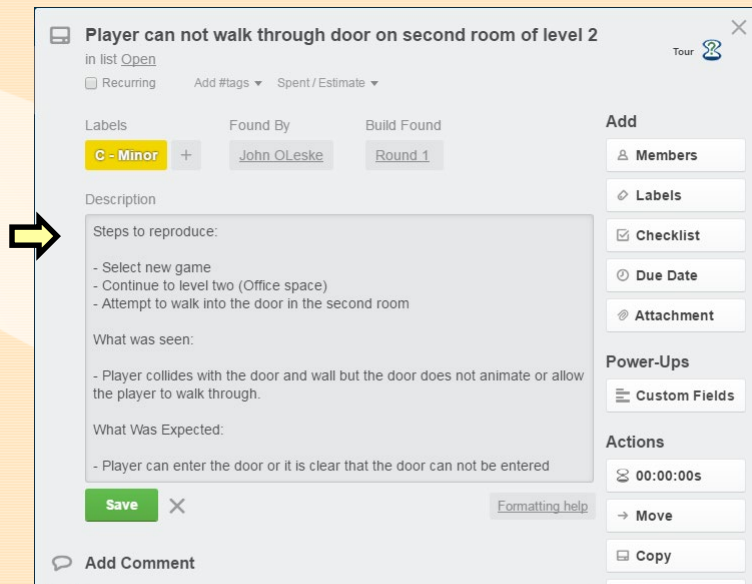
- Player collides with the door and wall but the door does not animate or allow the player to walk through.

On the right side of the form, there are sections for 'Add' (Members, Labels, Checklist, Due Date, Attachment) and 'Power-Ups' (Custom Fields).

Reporting bugs

Steps to reproduce the bug

- Should be steps starting from the main menu of a fresh boot



Player can not walk through door on second room of level 2 ✕

in list [Open](#) Tour

☐ Recurring Add #tags Spent / Estimate

Labels Found By Build Found

C - Minor + [John OLeske](#) [Round 1](#)

Description

Steps to reproduce:

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Save ✕ [Formatting help](#)

[Add Comment](#)

Add

- [Members](#)
- [Labels](#)
- ☒ [Checklist](#)
- [Due Date](#)
- [Attachment](#)

Power-Ups

- [Custom Fields](#)

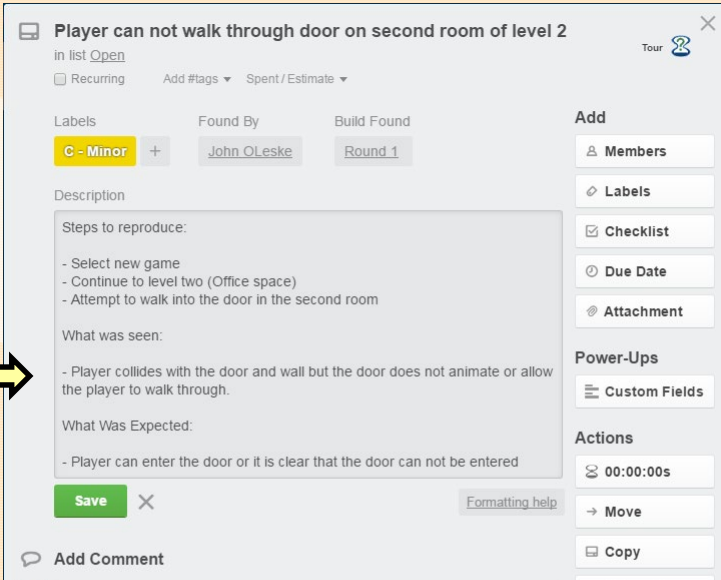
Actions

- [00:00:00s](#)
- [Move](#)
- [Copy](#)

Reporting bugs

What was seen

- Why do you think what you saw is wrong



Player can not walk through door on second room of level 2 Tour

in list [Open](#)

☐ Recurring Add #tags Spent / Estimate

Labels Found By Build Found

C - Minor + [John OLeske](#) [Round 1](#)

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[Save](#) [Formatting help](#)

[Add Comment](#)

Add

- [Members](#)
- [Labels](#)
- [Checklist](#)
- [Due Date](#)
- [Attachment](#)

Power-Ups

- [Custom Fields](#)

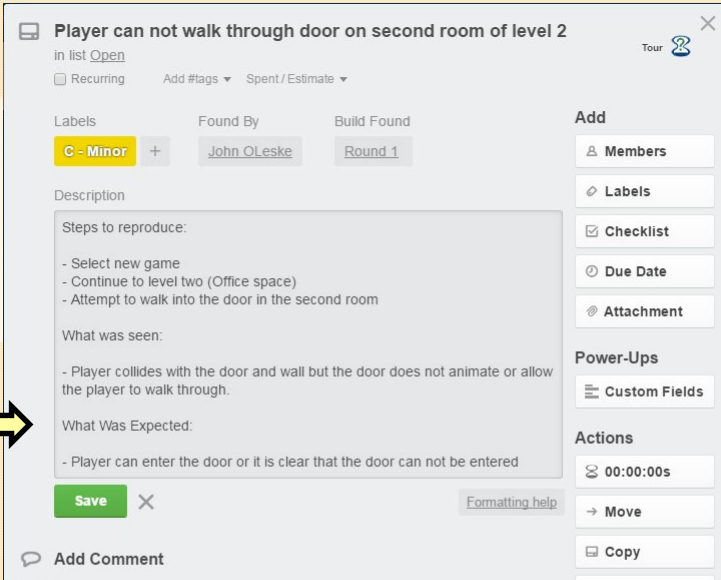
Actions

- [00:00:00s](#)
- [Move](#)
- [Copy](#)

Reporting bugs

What was expected

- What do you think it should have been



Player can not walk through door on second room of level 2 Tour

in list [Open](#)

☐ Recurring Add #tags Spent / Estimate

Labels Found By Build Found

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Save Formatting help

Add

- [Members](#)
- [Labels](#)
- [Checklist](#)
- [Due Date](#)
- [Attachment](#)

Power-Ups

- [Custom Fields](#)

Actions

- [00:00:00s](#)
- [Move](#)
- [Copy](#)

[Add Comment](#)

How severe the issue is

Reporting bugs

How severe is the issue

D - Suggestion

C - Minor ✓

B - Critical

A - Crash/ShowStopper

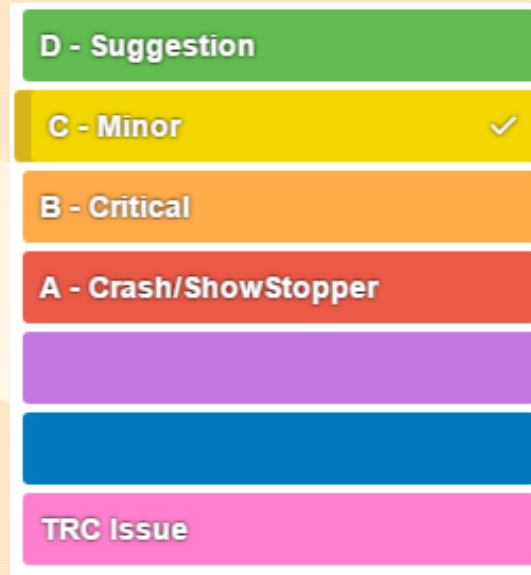
TRC Issue

TRC Issue

- Would cause the game to be rejected from a targeted platform

Reporting bugs

How severe is the issue



D - Suggestion

C - Minor ✓

B - Critical

A - Crash/ShowStopper

TRC Issue

A – Crash/Show Stopper

- Would cause the game to be unsellable
- Hinders testing of the product

Reporting bugs

How severe is the issue

D - Suggestion
C - Minor ✓
B - Critical
A - Crash/ShowStopper
TRC Issue

B – Critical

- Critically important to fix
- Would potentially cause loss of sales

Reporting bugs

How severe is the issue

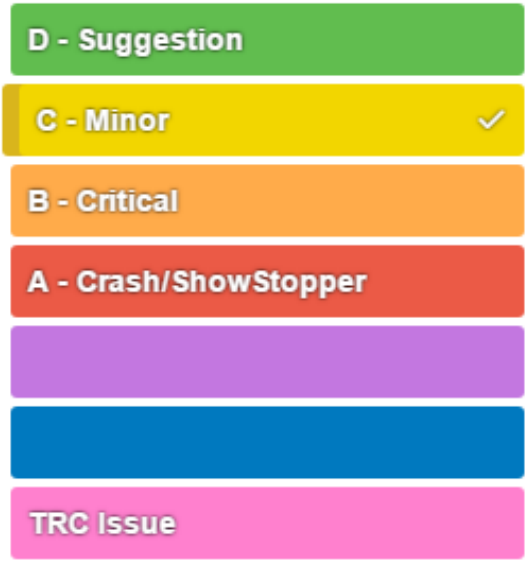
D - Suggestion
C - Minor ✓
B - Critical
A - Crash/ShowStopper
TRC Issue

C - Minor

- A true unambiguous bug
- Not a high priority

Reporting bugs

How severe is the issue



D - Suggestion

C - Minor ✓

B - Critical


A - Crash/ShowStopper

TRC Issue

D - Suggestion

- Grey area issues
- Things that could be left in the end product with little repercussion

Who found the bug



Player can not walk through door on second room of level 2

in list [Open](#)

☐ Recurring
 Add #tags ▼ Spent / Estimate ▼

Labels

C - Minor +

Found By

John OLeske

Build Found

Round 1

Description [Edit](#)

Steps to reproduce:

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Add

Members

Labels


Checklist

Due Date


Attachment

Power-Ups






Custom Fields



Add Comment



Write a comment...

Save

Custom Fields


Found By

John OLeske

Build Found

Round 1

Save



What build was the bug found in

Reporting bugs

Who is going to fix the bug

The screenshot displays a bug reporting interface. The main bug report is titled "Player can not walk through door on second room of level 2" and is categorized as "C - Minor". It was found by "John OLeske" and is related to "Design/Placement". The bug is associated with "Round 1". The description includes steps to reproduce the issue: selecting a new game, continuing to level two (Office space), and attempting to walk into the door in the second room. The expected behavior is that the player can enter the door, but the actual behavior is that the player collides with the door and wall, and the door does not animate or allow the player to walk through.

A yellow arrow points to the "Add" button, which is labeled "Members". The "Members" dropdown menu is open, showing a list of team members with their initials and names. The members listed are:

- John OLeske (johnoleske)
- Greg Bey (gregbey1)
- Jon Hamrick (jonhamrick1)
- Robert Martinez (rmartinez)
- Rod Moya (rodmoey)
- Sean Hathaway (seanhathaway1)

The interface also includes a "Tour" button, a "Recurring" checkbox, and a "Spent / Estimate" dropdown. The "Add Comment" section is visible at the bottom, with a text input field and a "Write a comment..." button.

Bug Rules

A bug is clear as to what the issue is

- Avoid ambiguous terms
- Use the same names for items that are used in the product

Bug Rules

Each bugs only contains one issue

- It is tempting to submit “level one has the following issues...”
- Each bug should contain one thing that needs to be fixed

Bug Rules

A bug is always reproducible

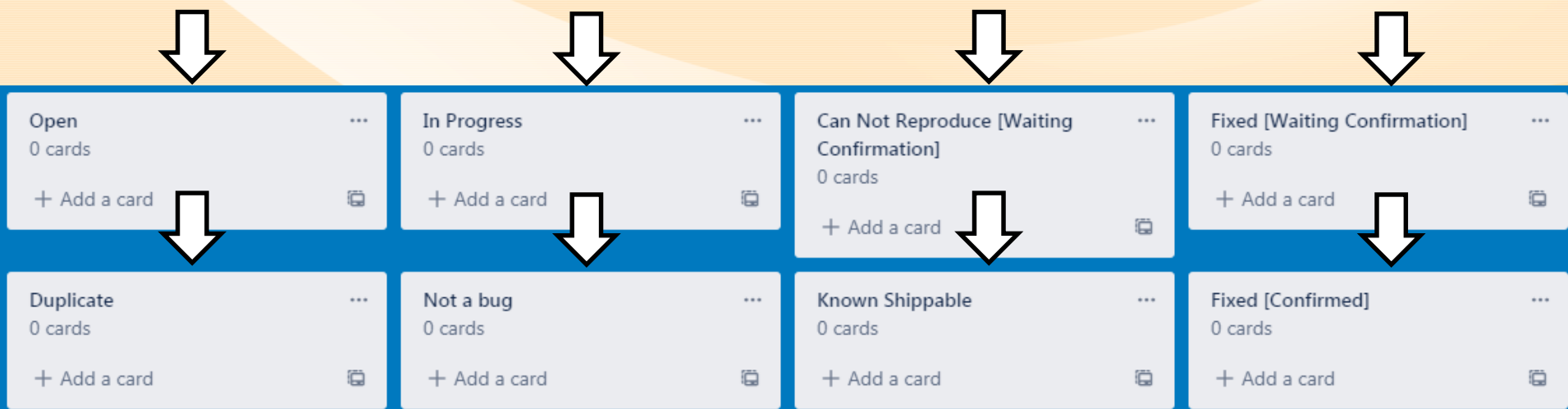
- This isn't saying that failing to reproduce the outcome means it isn't a bug
- If you can't reproduce the bug you haven't found the cause of the bug yet

Bug life cycle

Bug life cycle

Open

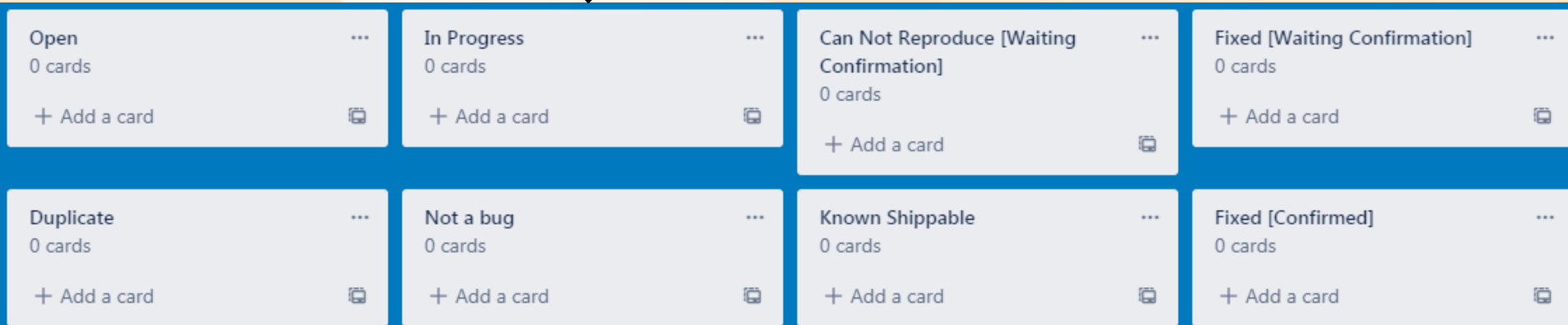
- Just got submitted
- Waiting for someone to start work on it



Bug life cycle

In Progress

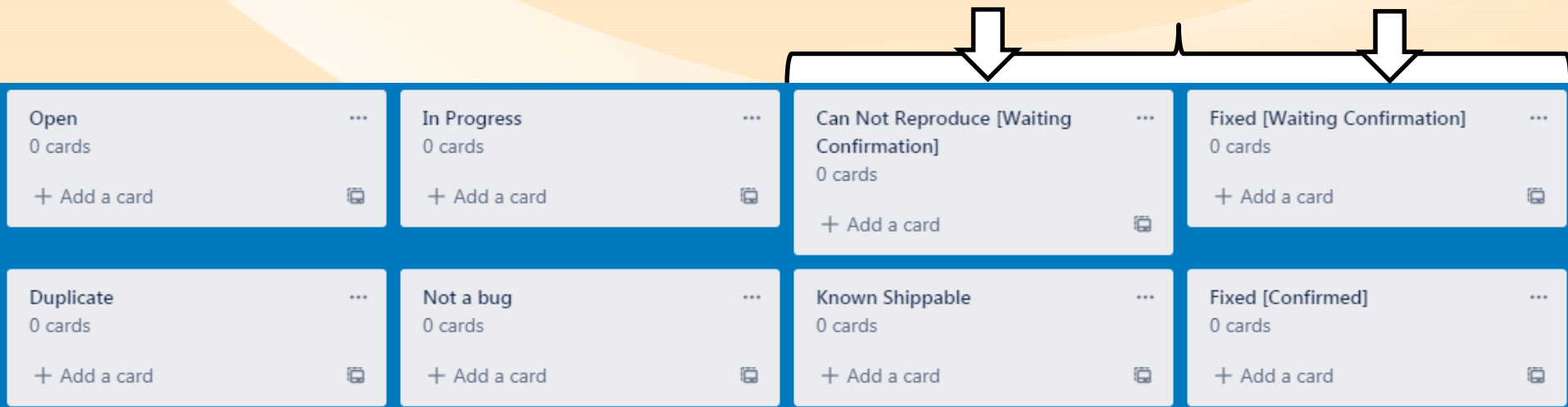
- Someone is currently working on fixing it



Bug life cycle

Waiting Verification Statuses

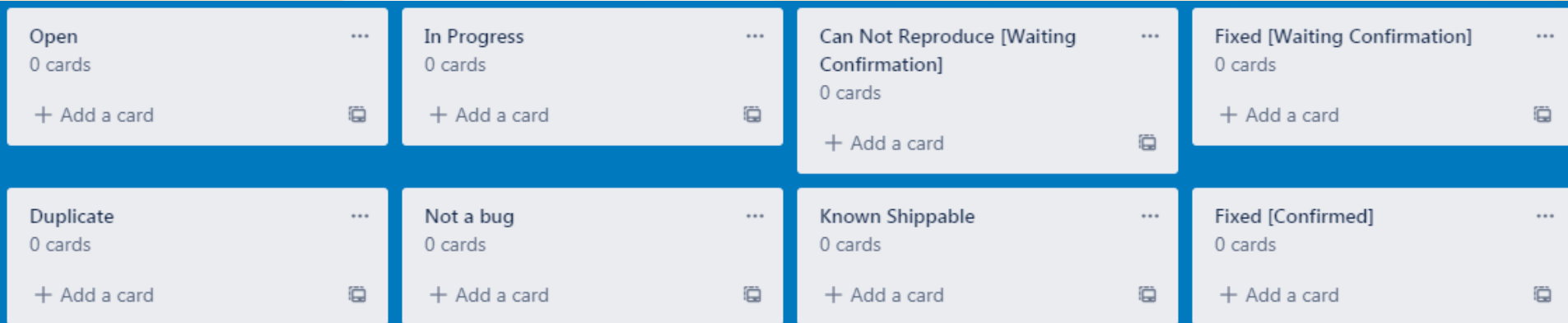
- Dev is done with the bug and it is returned to producers or QA for verification



Bug life cycle

Cannot reproduce (waiting confirmation)

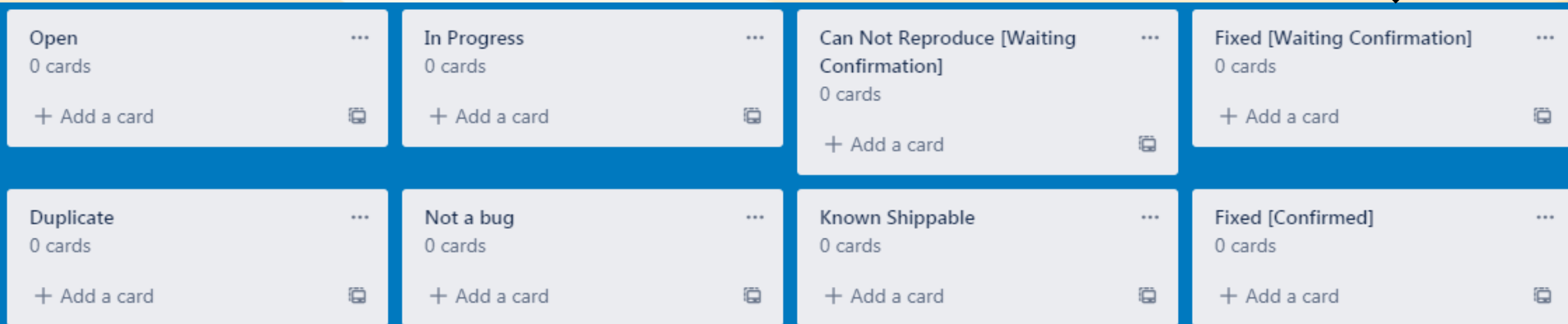
- A developer attempted to reproduce it on their own machines and were not able to
- Perhaps got fixed since it was entered as a bug from something else
- Developer may need assistance in recreating it



Bug life cycle

Fixed (waiting confirmation)

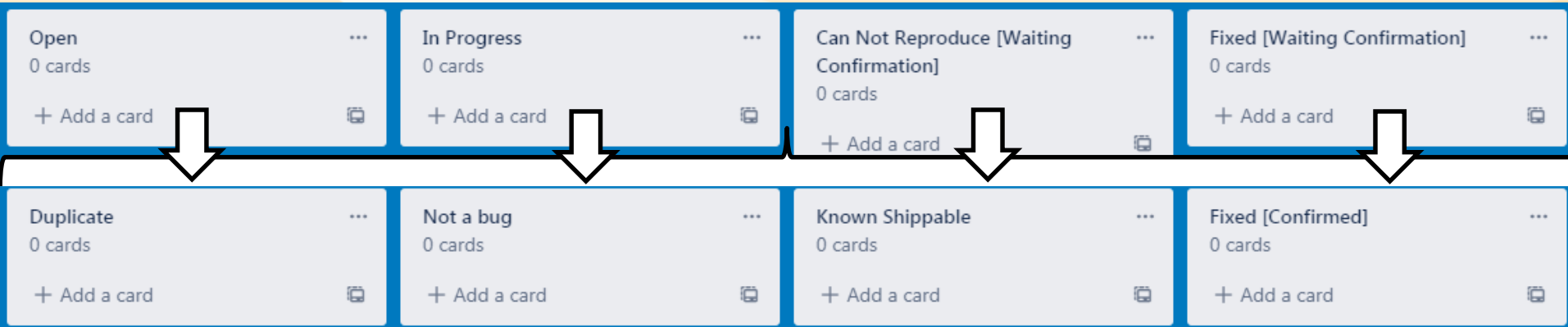
- A developer went in and fixed the bug



Bug life cycle

Closed Statuses

- No more action on the card is necessary



Duplicate

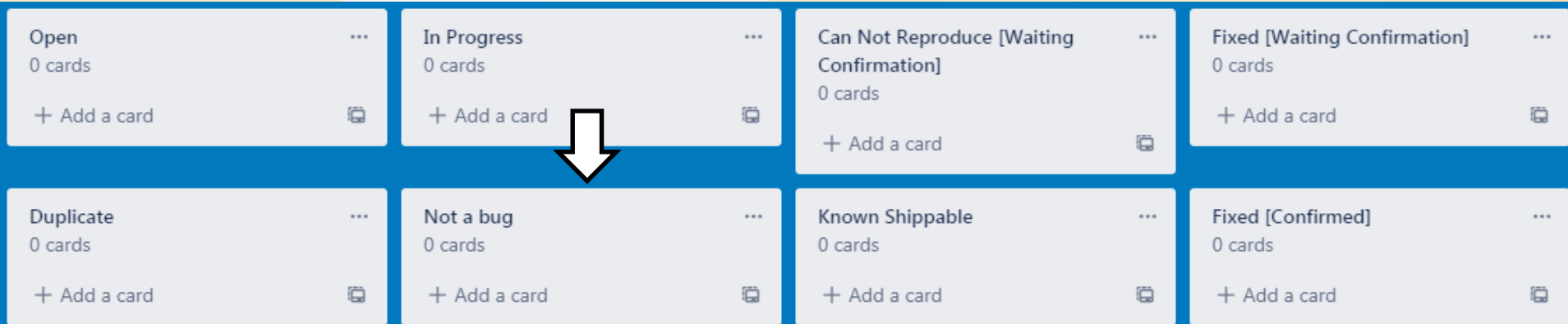
- Entered in the bug database elsewhere
- Comments must reference the bug it is a duplicate of



Bug life cycle

Not a bug

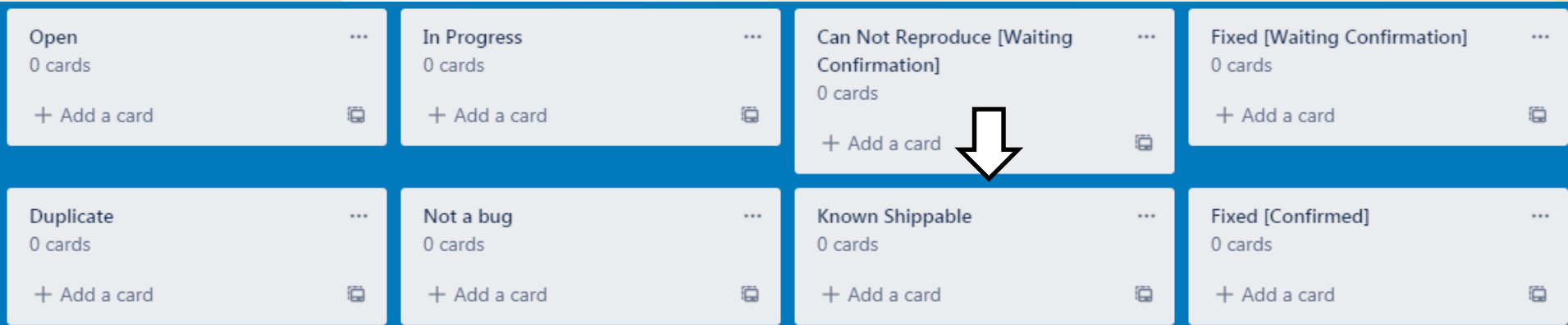
- Unsure why it was entered as a bug at all
- Unclear on tester's intention
- Note: This is often vastly overused by new developers. Just because it was intended by the developer does not mean it isn't a bug if the players do not understand



Bug life cycle

Known Shippable

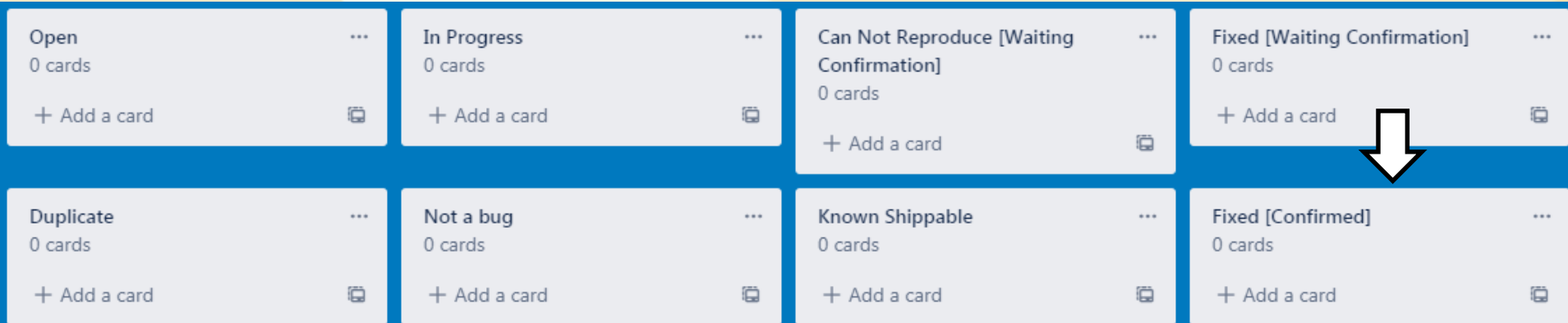
- A choice was made to leave it in the build as is



Bug life cycle

Fixed (confirmed)

- Marked as fixed by a developer and confirmed to be fixed by QA

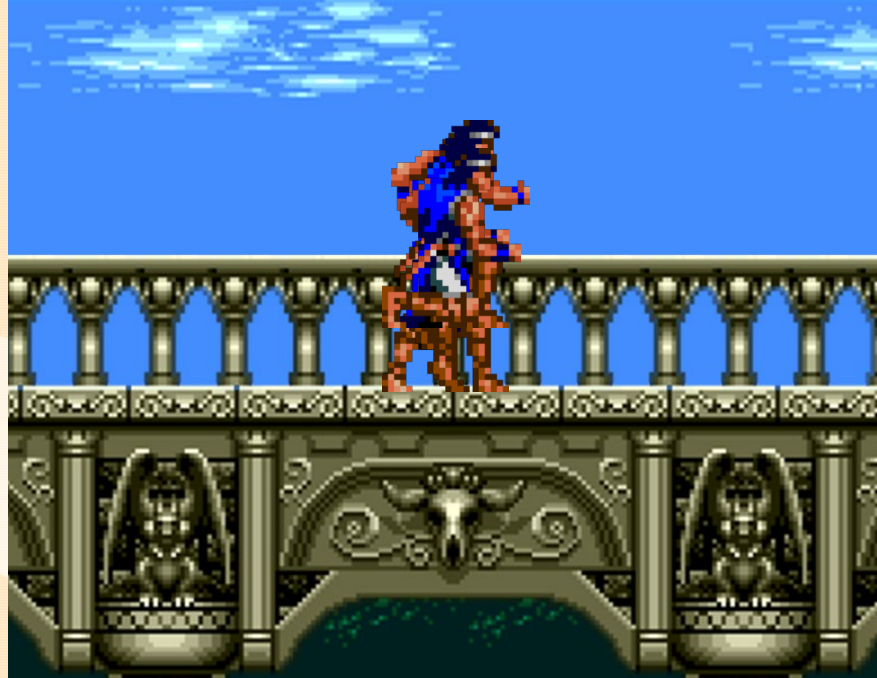


Example

A bug's life

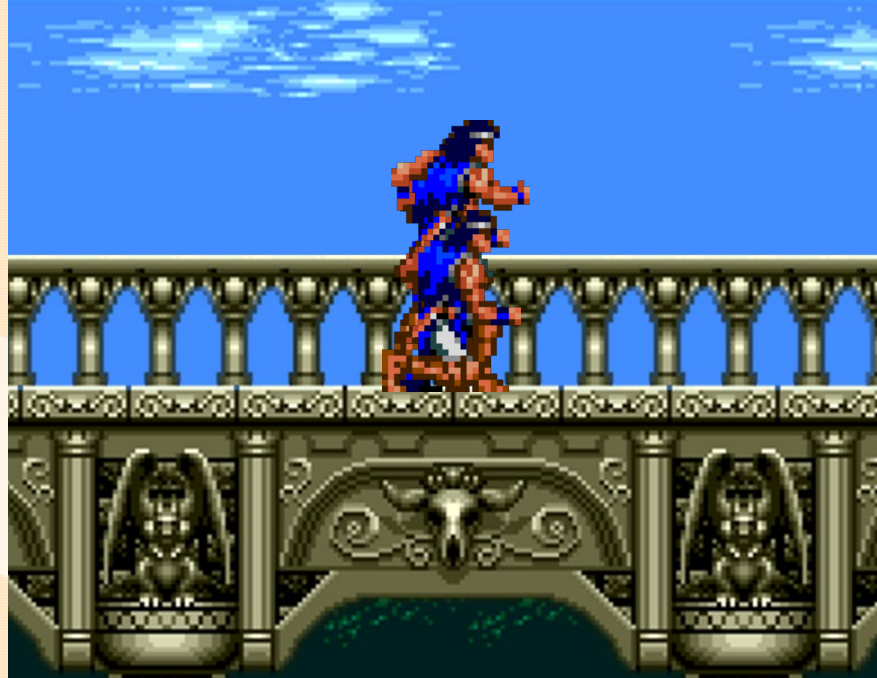
Example: What was seen

- What was seen



Example: What was expected

- What was expected (player)



Example: Bug reported

Collision issues jumping on the bridge on level two

in list [Open](#)

Recurring

Add #tags

S/E & More

LABELS

C - Minor

+

Description

Edit

From the main menu select new game.

- Complete level one and continue to level two
- Proceed halfway though level two where there is a large ornamental bridge
- Jump onto the bridge

Result: When the user jumps on the bridge the player lands slightly above the floor of the bridge. This issues does not occur when walking onto the bridge.

Expected result: The player will walk along the bridge normally no matter what way they entered it.

Custom Fields

T FOUND BY

Tester

BUILD FOUND

Round 1

Attachments

image.png

Added just now - [Comment](#) - [Delete](#) - [Edit](#)

Make Cover

Join

Feedback

ADD TO CARD

Members

Labels

Checklist

Due Date

Attachment

Cover

POWER-UPS

Custom Fields

Get More Power-Ups

Get unlimited Power-Ups, plus much more.

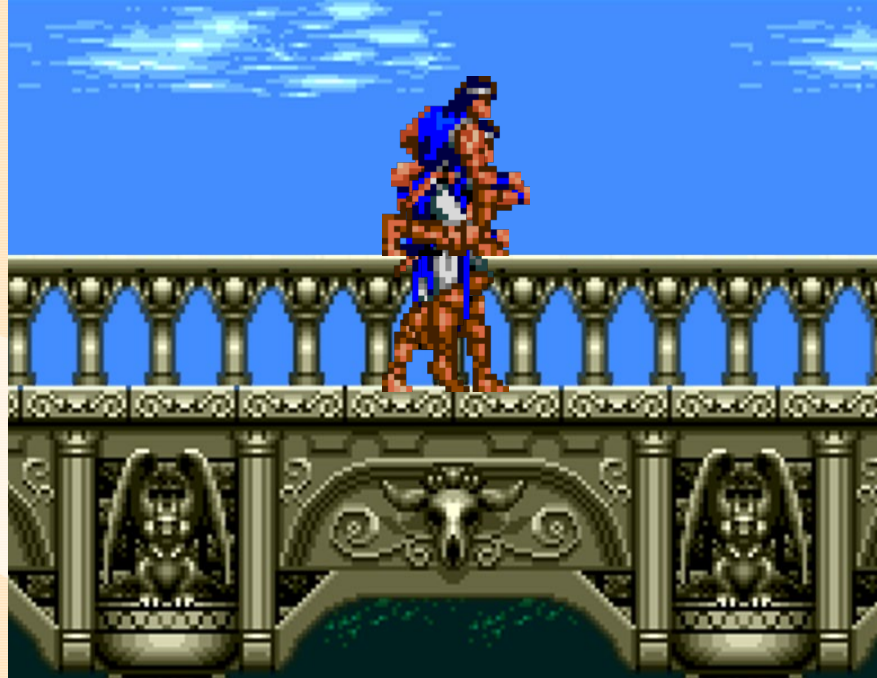
Upgrade Team

ACTIONS

00:00:00s

Example: Dev Intent

- What was expected (Dev)



Example: Dev response

If they didn't actually spend time to understand the bug

- Not a bug. We intended to be able to jump on the handrail

If they did spend time to understand the bug

- Fix the collision detection line for the handrail

Example: Fixing

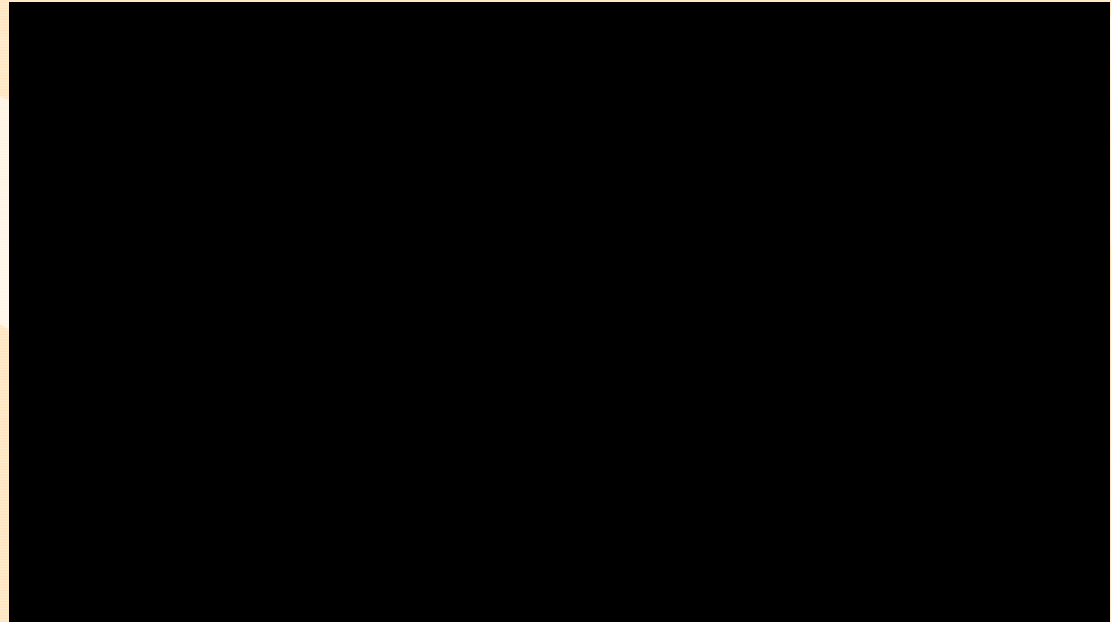
Fix the real problem

- Frequently the fix is not the expected results
- Many times the fix is informing the player of the intent
- Sometimes the fix is avoiding the issue

<Activity> Bug Examples

Bug examples

- How would we go about resolving issues that get reported to us.
 - <https://youtu.be/CGhme22zvvl>



Don't let it get Personal

It is very easy to lose sight of the bigger picture

- It isn't about the people involved; it is about making the game as good as it can be
- QA reporting bugs != QA saying your game is bad
 - Or that you are a bad dev in conjunction with that
- It isn't QA's fault that they found a bug
 - The bug was there, they are just letting you know about it.
- Dev refusing to fix a bug does not mean it shouldn't have been submitted
 - Discussions and decision on that have to be made

Promotional Materials

The background features a series of overlapping, flowing waves in shades of orange, yellow, and brown, creating a sense of movement and depth. The colors transition from bright yellow at the top left to darker brown and grey at the bottom right.

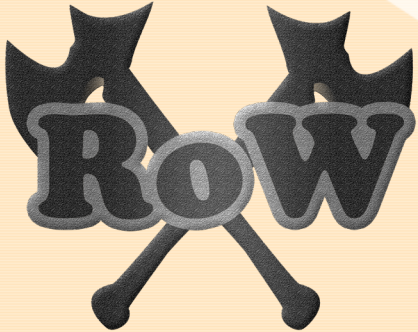
Promotional Materials

- Promotional materials need to be created
 - Team Logo
 - Screenshot
 - Demo Video
- Why
 - We need them for archiving
 - They will be used at the expo
 - You should want them to promote yourself

Promotional Materials: Logo

Create a simple team logo

- Printable
 - No solid background
- Readable at a distance



Promotional Materials: Screen Shot

Create a screenshot

- Shows a main player action
- Shows an interesting environment
- Shows obstacles being overcome
- Is clear as to what is happening

Suggested Program

- fn+alt+prt sc(print screen)
- MSPaint



- Don't expect to get a perfect screen shot on the first try. generally it takes a lot of attempts and possibly a custom edited game scene to get the screenshot that really hits all the points above.

Promotional Materials: Video

Create a Video

- Shows multiple player actions, environments, and obstacles being overcome
- Start and end with a game/team title screen
- 1-2 minutes long
- MINIMUM resolution 1280x720
- .mp4 (H.264 codec preferred)

Suggested programs

Capture

- OBS
 - <https://obsproject.com/>
- Loilo Game Recorder
 - http://loilo.tv/us/product/game_recorder
 - Not studio or Loiloscope, that adds a watermark

Editing

- DaVinci Resolve

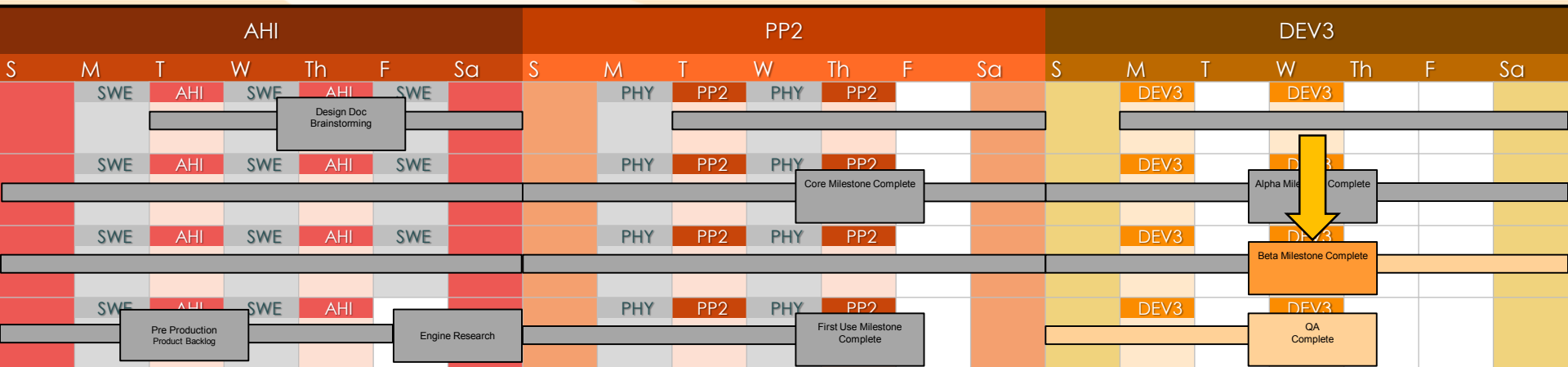


Assignments

QA and Finalizing

Starts day 6 of PP3

- Average hourly commitment
 - 4 dedicated work days
 - 2 testing days
 - 2 fixing days



QA Schedule

Today before end of lecture

- Dev teams will provide test teams:
 - Game installer
 - Access to bug tracker

By 9am tomorrow

- First round of testing must be complete
 - 10bugs per tester minimum
 - Allow Dev teams time to fix bugs

Before the 7th lecture

- Fix as many issues as possible
 - Update the tracker to show its status
 - Have a new build made BEFORE class
- Create Promotional Materials
 - Assign a team member to the task

QA Schedule

Start of class Lecture 7

- Promotional Material submitted
- New build delivered to QA teams
 - Testing team must confirm that bugs are truly fixed

By 9am the day after lecture 7

- Second round of testing must be complete
 - 10bugs per tester minimum
 - Allow Dev teams time to fix bugs

Before the 8th lecture

- Fixing the remaining issues.
 - Update the tracker to show its status
 - Have the final build BEFORE class

QA Schedule

Start of class Final Day

- Final turn in
 - Installer
 - Codebase
 - Trello Exported by staff
- New build delivered to QA teams
 - Final fix confirmations
 - Only reporting A level issues
 - All bug in database should be fixed or approved to remain by CD
- Games running on target platforms
 - Public at this point

Before end of lab

- Postmortem
 - Class discussion / Document creation
- Wrap up notes

Presentations

Presentation day

- *confirm date and time
- Open floor expo presentation
 - Teams spread evenly throughout the room
 - Guests playing the games on your computers/hardware
 - We are available to answer questions and present the games 1 on 1

Additional Resources

Steve Wetherill: Opinion—Quality Assurance For Dummies

- http://www.gamasutra.com/view/news/104290/Opinion_Quality_Assurance_For_Dummies.php



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