
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

- Finalize Trello board
 - All user stories in final categories
 - Complete = 100% done all test cases are true.
 - Partially complete = Something isn't done on the userstory yet, explain what in the comments for the card.
 - Incomplete = Little to no work done on the task, no test cases can be checked as true.
 - Hours spent on tasks entered
- Discuss work problems if there were any
 - If a user story estimate was off, why was it off?
- Do not archive or move userstory cards off the board.
 - Staff will copy incomplete work from sprint to product backlog where appropriate to be treated as unassigned userstories here forward

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 Cannot walk through door in second room of level 2

in list [Open](#)

☐ Recurring

Add #tags

S/E & More

Description

Edit

Build Found:

Steps to reproduce:

- 1 Start new game
- 2 Continue to level two
- 3 Attempt to walk in door in the second room

What was seen:

- Player collides with the door and wall but the door does not animation to allow the player to walk through like previous doors

Expected results:

- Player can enter the door or the door is clearly different than the doors that can be opened.

Activity

Hide Details

JO

Write a comment...

JO

John Oleske copied this card from [Bug Formatting Example](#) <Description Here> in list Open

Suggested

Join

Add to card

Members

Labels

Labels

Labels

D - Suggestion

C - Minor

B - Critical

A - Crash/ShowStopper

Unplanned Work

TRC Issue

Reporting bugs

Summary of the issue

- Short clear description of the bug

Player Cannot walk through door in second room of level 2

in list [Open](#)

☐ Recurring [Add #tags](#) [S/E & More](#)

Description [Edit](#)

Build Found:

Steps to reproduce:

- 1 Start new game
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Activity [Hide Details](#)

[JO](#) Write a comment...

[JO](#) **John Oleske** copied this card from [Bug Formatting Example <Description Here>](#) in list Open

Suggested [Join](#)

Add to card [Members](#) [Labels](#)

Labels

Search labels...

Labels

- D - Suggestion** [Edit](#)
- C - Minor** [Edit](#)
- B - Critical** [Edit](#)
- A - Crash/ShowStopper** [Edit](#)
- Unplanned Work** [Edit](#)
- TRC Issue** [Edit](#)

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”

Player Cannot walk through door in second room of level 2 ✕

in list [Open](#)

☐ Recurring Add #tags S/E & More

Description Edit

Build Found:

Steps to reproduce:

- 1 Start new game
- 2 Continue to level two
- 3 Attempt to walk in door in the second room

What was seen:

- Player collides with the door and wall but the door does not animation to allow the player to walk through like previous doors

Expected results:

Suggested ⚙

[Join](#)

Add to card

[Members](#)

[Labels](#)

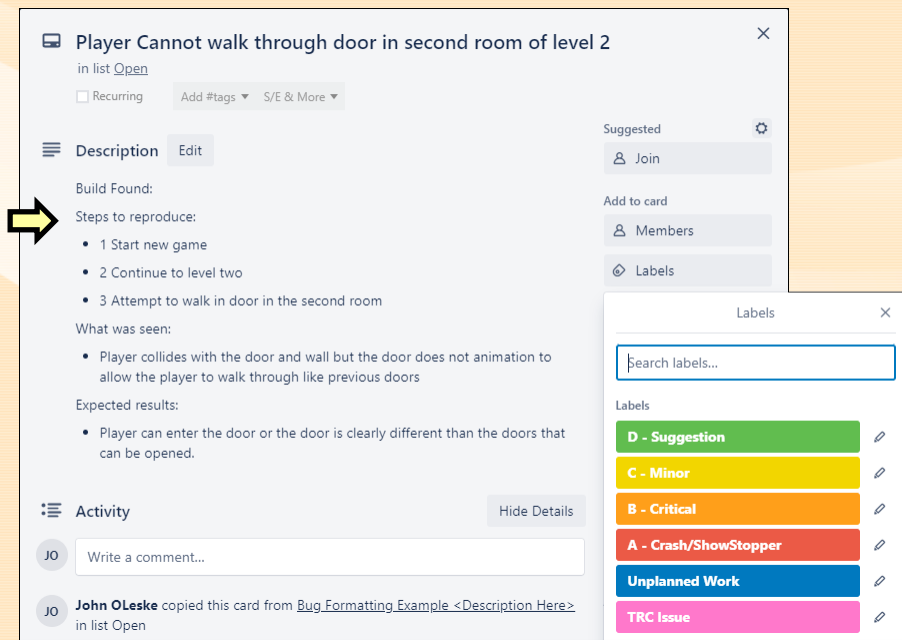
Labels ✕

Labels

Reporting bugs

Steps to reproduce the bug

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



The screenshot shows a bug report card titled "Player Cannot walk through door in second room of level 2". The card is divided into several sections: "Description", "Activity", and "Labels". A yellow arrow points to the "Steps to reproduce" section under "Description".

Player Cannot walk through door in second room of level 2
in list [Open](#)
☐ Recurring [Add #tags](#) [S/E & More](#)

Description [Edit](#)

Build Found:

Steps to reproduce:

- 1 Start new game
- 2 Continue to level two
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Activity [Hide Details](#)

[JO](#) Write a comment...

[JO](#) **John Oleske** copied this card from [Bug Formatting Example](#) <Description Here> in list Open

Suggested [Join](#)

Add to card
[Members](#)
[Labels](#)

Labels

Search labels...

Labels

- D - Suggestion** [Edit](#)
- C - Minor** [Edit](#)
- B - Critical** [Edit](#)
- A - Crash/ShowStopper** [Edit](#)
- Unplanned Work** [Edit](#)
- TRC Issue** [Edit](#)

Reporting bugs

What build was the bug found in

Player Cannot walk through door in second room of level 2 ×

in list [Open](#)

☐ Recurring Add #tags ▼ S/E & More ▼

Description Edit

Build Found:

Steps to reproduce:

- 1 Start new game
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Activity Hide Details

JO Write a comment...

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Suggested ⚙

Join

Add to card

Members

Labels

Labels ×

Search labels...

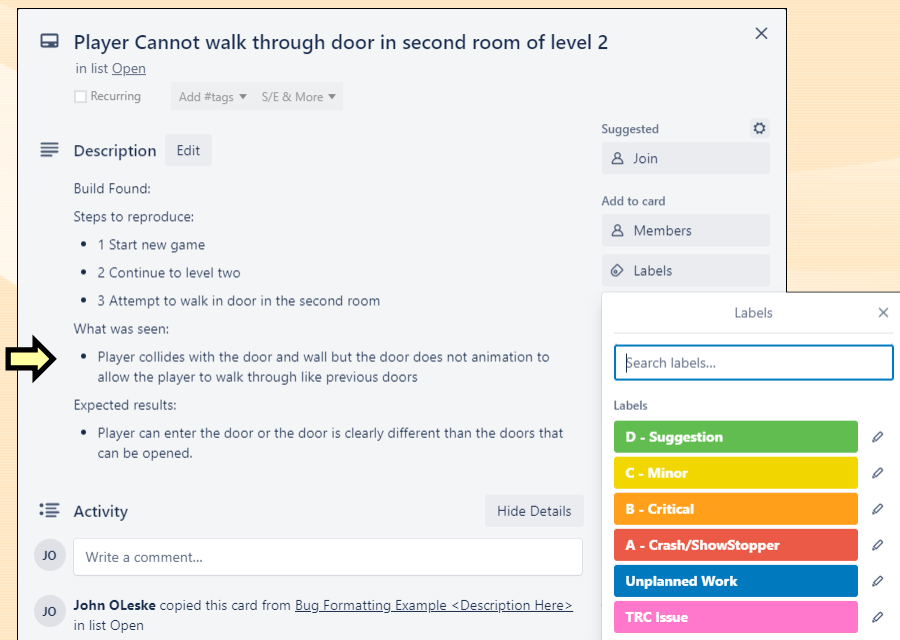
Labels



- D - Suggestion** ✎
- C - Minor** ✎
- B - Critical** ✎
- A - Crash/ShowStopper** ✎
- Unplanned Work** ✎
- TRC Issue** ✎

Reporting bugs

What was seen


- Why do you think what you saw is wrong



 **Player Cannot walk through door in second room of level 2** 

in list [Open](#)

☐ Recurring Add #tags S/E & More

 **Description** Edit

Build Found:

Steps to reproduce:


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 **Activity** Hide Details


 Write a comment...


 **John Oleske** copied this card from [Bug Formatting Example](#) <Description Here> in list Open


Suggested 

 Join







Add to card

 Members

 Labels

Labels 

Labels

- D - Suggestion** 
- C - Minor** 
- B - Critical** 
- A - Crash/ShowStopper** 
- Unplanned Work** 
- TRC Issue** 

Reporting bugs

What was expected

- What do you think it should have been

Player Cannot walk through door in second room of level 2 ×

in list [Open](#)

☐ Recurring Add #tags S/E & More

Description Edit

Build Found:

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JO Write a comment...

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- Unplanned Work** ✎
- TRC Issue** ✎

Reporting bugs

How severe the issue is

- Entered using the labels on the card

Player Cannot walk through door in second room of level 2 ×

in list [Open](#)

☐ Recurring Add #tags ▼ S/E & More ▼

Description Edit

Build Found:

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- 1 Start new game
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Activity Hide Details

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Suggested ⚙

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Labels ×

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- Unplanned Work** ✎
- TRC Issue** ✎

Reporting bugs

How severe is the issue

Player Cannot walk through door in second room of level 2

in list [Open](#)

☐ Recurring

Add #tags S/E & More

Description

Edit

Build Found:

Steps to reproduce:

What was seen:

Expected results:

Activity

Hide Details

JO

Write a comment...

JO

John Oleske copied this card from [Bug Formatting Example](#) <Description Here> in list Open

TRC Issue

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

Labels

Labels

D - Suggestion

C - Minor

B - Critical

A - Crash/ShowStopper

Unplanned Work

TRC Issue

Reporting bugs

How severe is the issue

Player Cannot walk through door in second room of level 2

in list [Open](#)

☐ Recurring

Add #tags S/E & More

Description

Edit

Build Found:

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Activity

Hide Details

JO

Write a comment...

JO

John Oleske copied this card from [Bug Formatting Example](#) <Description Here> in list Open

Suggested

Join

Add to card

Members

Labels

A – Crash/Show Stopper

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

Labels

Labels

D - Suggestion

C - Minor

B - Critical

A - Crash/ShowStopper

Unplanned Work

TRC Issue

Reporting bugs

How severe is the issue

Player Cannot walk through door in second room of level 2

in list [Open](#)

☐ Recurring

Add #tags

S/E & More

Description

Edit

Build Found:

Steps to reproduce:

What was seen:

Expected results:

Activity

Hide Details

JO

Write a comment...

JO

John Oleske copied this card from [Bug Formatting Example](#) <Description Here> in list Open

Suggested

Join

Add to card

Members

Labels

B – Critical

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

Labels

Search labels...

Labels

D - Suggestion

C - Minor

B - Critical

A - Crash/ShowStopper

Unplanned Work

TRC Issue

Reporting bugs

How severe is the issue

Player Cannot walk through door in second room of level 2

in list [Open](#)

☐ Recurring

Add #tags S/E & More

Description

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Activity

Hide Details

JO

Write a comment...

JO

John Oleske copied this card from [Bug Formatting Example](#) <Description Here> in list Open

Suggested

Join

Add to card

Members

Labels

C - Minor

- A true unambiguous bug
- Not a high priority

Labels

Labels

D - Suggestion

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B - Critical

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Unplanned Work

TRC Issue

Reporting bugs

How severe is the issue

Player Cannot walk through door in second room of level 2

in list [Open](#)

☐ Recurring

Add #tags ▼ S/E & More ▼

Description

Edit

Build Found:

Steps to reproduce:

What was seen:

Expected results:

Activity

Hide Details

JO

Write a comment...

JO

John Oleske copied this card from [Bug Formatting Example](#) <Description Here> in list Open

Suggested

Join

Add to card

Members

Labels

D - Suggestion

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

Labels

Labels

D - Suggestion

C - Minor

B - Critical

A - Crash/ShowStopper

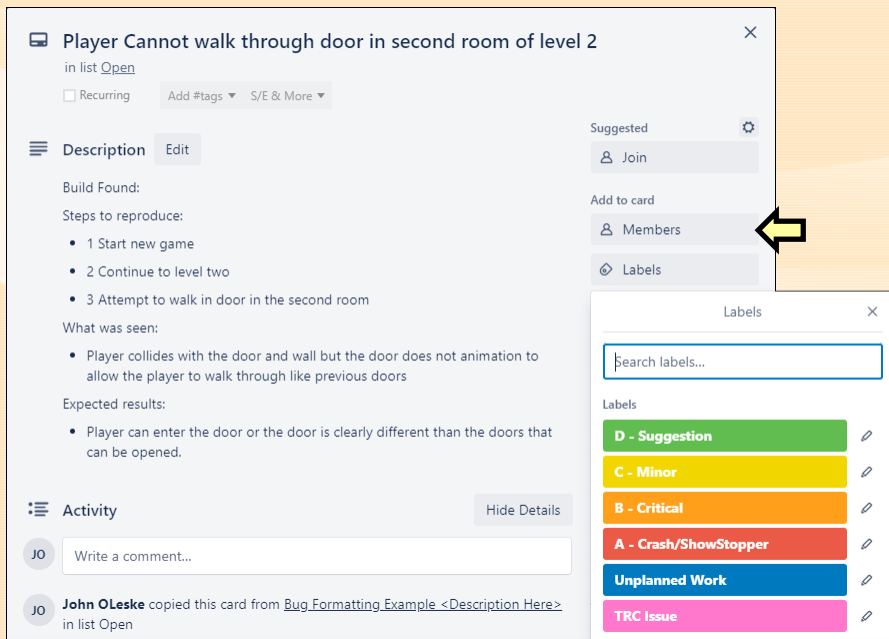
Unplanned Work

TRC Issue

Reporting bugs

Who found the bug

- Tester who found the bug adds themselves as a member



The screenshot displays a bug reporting interface. The main bug card is titled "Player Cannot walk through door in second room of level 2" and includes a description, steps to reproduce, and activity. A dropdown menu is open on the right side of the card, showing options to "Join", "Add to card", and "Labels". A yellow arrow points to the "Members" option in the "Add to card" section. Below the dropdown, a "Labels" modal is visible, showing a search bar and a list of labels: "D - Suggestion", "C - Minor", "B - Critical", "A - Crash/ShowStopper", "Unplanned Work", and "TRC Issue".

Bug Card Details:

- Title:** Player Cannot walk through door in second room of level 2
- Status:** in list [Open](#)
- Recurring:** ☐ Recurring
- Tags:** Add #tags S/E & More
- Description:** Build Found: Steps to reproduce: 1 Start new game 2 Continue to level two 3 Attempt to walk in door in the second room What was seen: Player collides with the door and wall but the door does not animation to allow the player to walk through like previous doors Expected results: Player can enter the door or the door is clearly different than the doors that can be opened.
- Activity:** John Oleske copied this card from Bug Formatting Example <Description Here> in list Open

Labels Dropdown:

- Join
- Add to card
 - Members
 - Labels

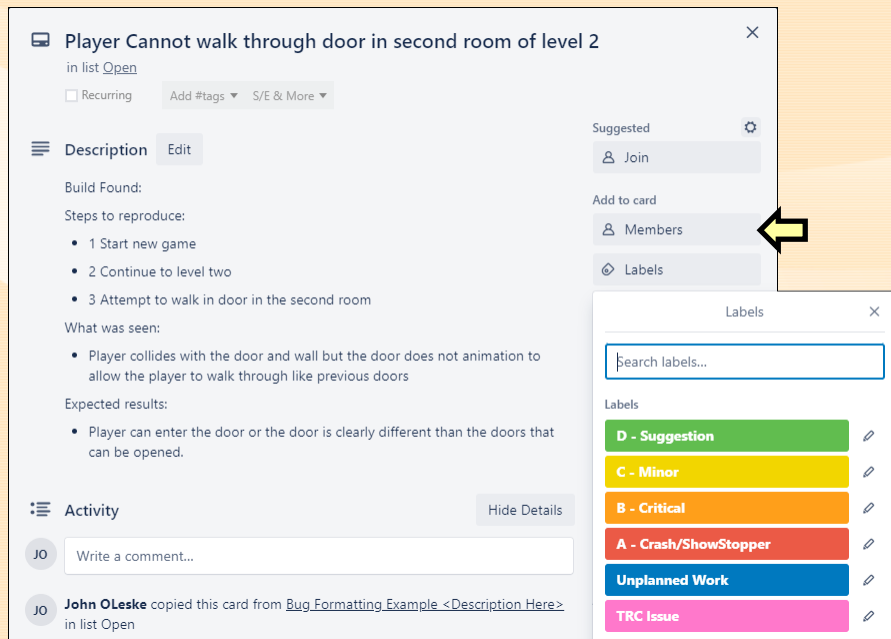
Labels Modal:

- Search labels...
- Labels
 - D - Suggestion
 - C - Minor
 - B - Critical
 - A - Crash/ShowStopper
 - Unplanned Work
 - TRC Issue

Reporting bugs

Who is going to fix the bug

- Developer who is going to fix the bug adds themselves as a member



The screenshot shows a Jira bug report form for the issue "Player Cannot walk through door in second room of level 2". The form includes fields for "Description", "Steps to reproduce", "What was seen", and "Expected results". On the right side, there is a "Suggested" section with a "Join" button. Below it, the "Add to card" section contains "Members" and "Labels" buttons. A yellow arrow points to the "Members" button. At the bottom, there is an "Activity" section with a comment input field and a "Hide Details" button.

Player Cannot walk through door in second room of level 2 ×

in list [Open](#)

☐ Recurring Add #tags S/E & More

Description Edit

Build Found:

Steps to reproduce:

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Activity Hide Details

JO Write a comment...

JO **John Oleske** copied this card from [Bug Formatting Example](#) <Description Here> in list Open

Suggested ⚙

Join

Add to card

Members Labels

Labels ×

Labels

- D - Suggestion** ✎
- C - Minor** ✎
- B - Critical** ✎
- A - Crash/ShowStopper** ✎
- Unplanned Work** ✎
- TRC Issue** ✎

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

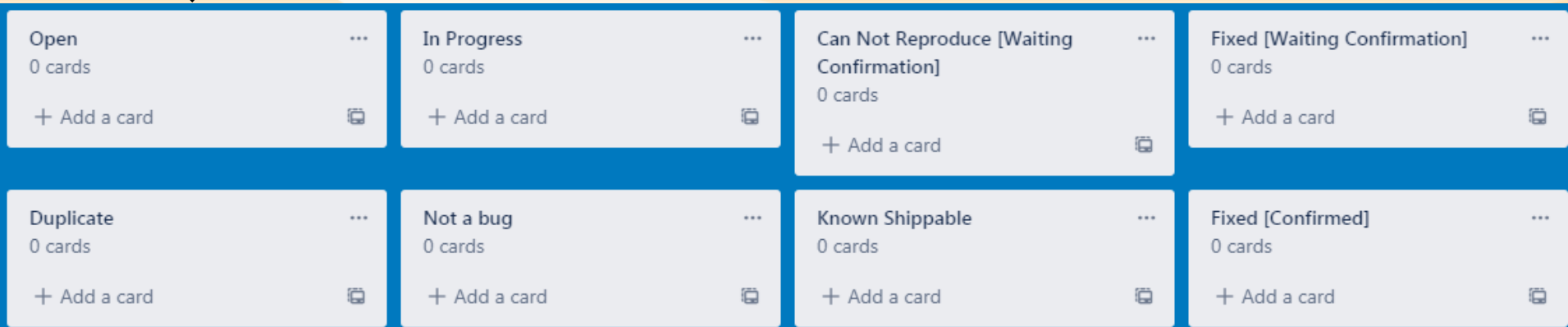
- This isn't saying that failing to reproduce the outcome means it isn't a bug
- If you can't reproduce the bug you haven't found the cause of the bug yet

Bug life cycle

Bug life cycle

Open

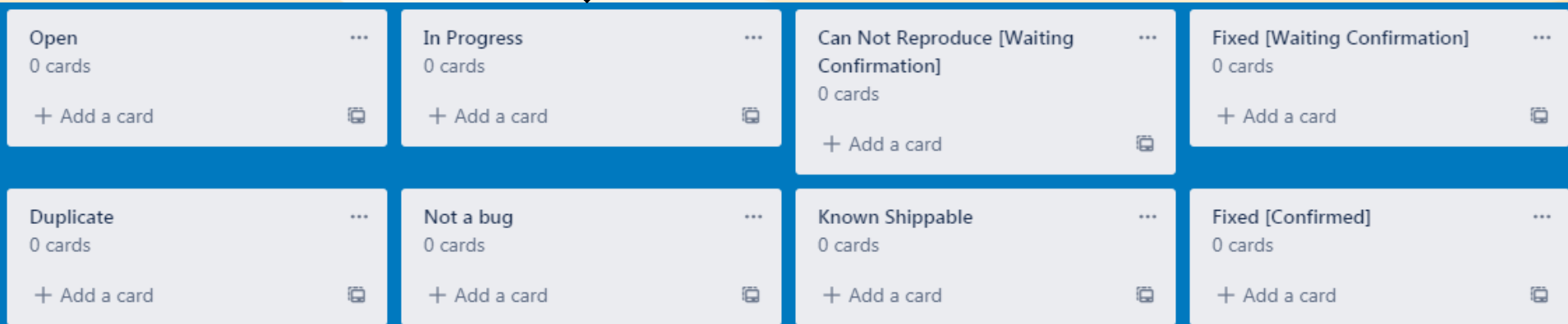
- Just got submitted
- Waiting for someone to start work on it



Bug life cycle

In Progress

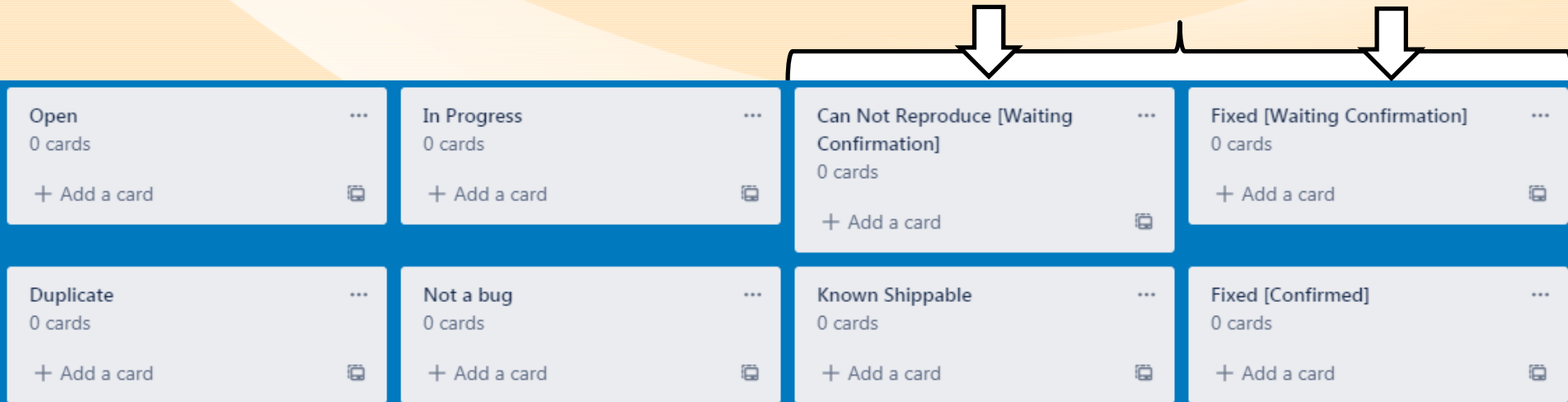
- Someone is currently working on fixing it



Bug life cycle

Waiting Verification Statuses

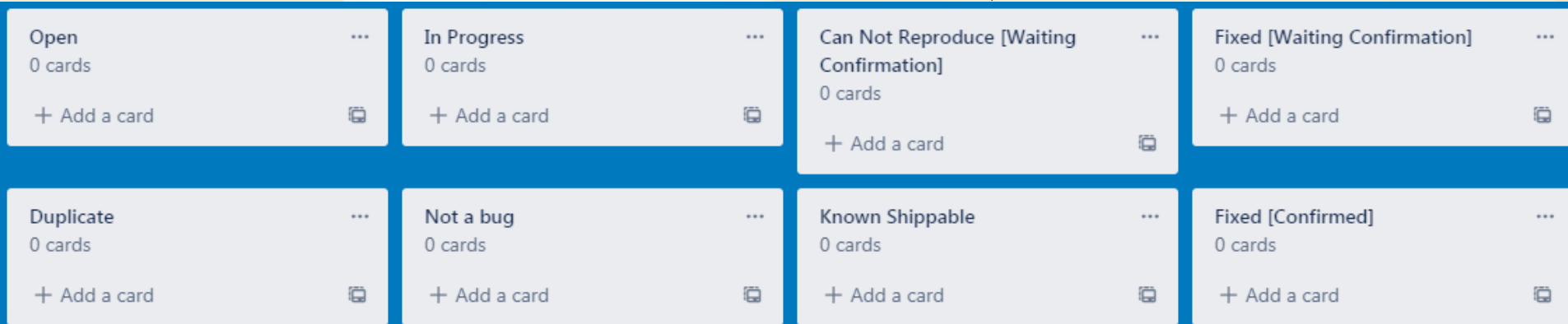
- Dev is done with the bug and it is returned to producers or QA for verification



Bug life cycle

Cannot reproduce (waiting confirmation)

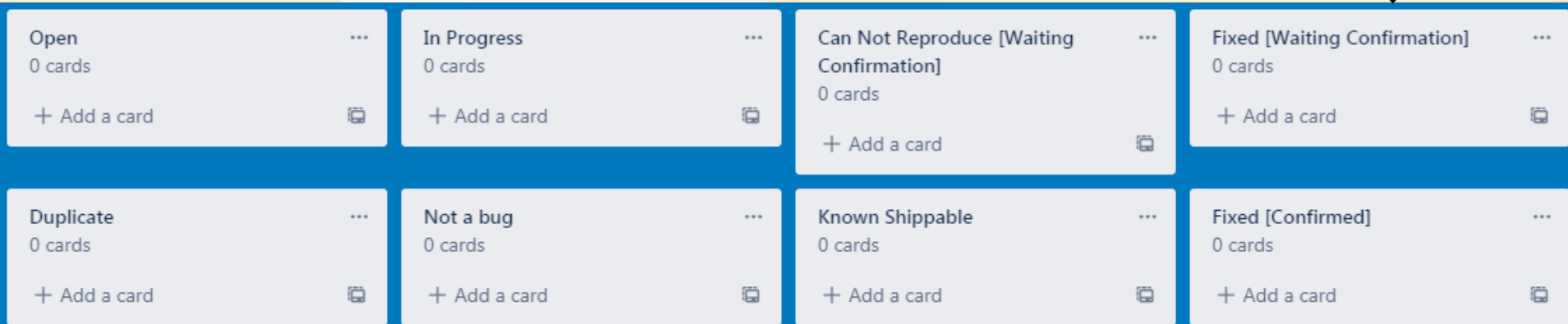
- A developer attempted to reproduce it on their own machines and were not able to
- Perhaps got fixed since it was entered as a bug from something else
- Developer may need assistance in recreating it



Bug life cycle

Fixed (waiting confirmation)

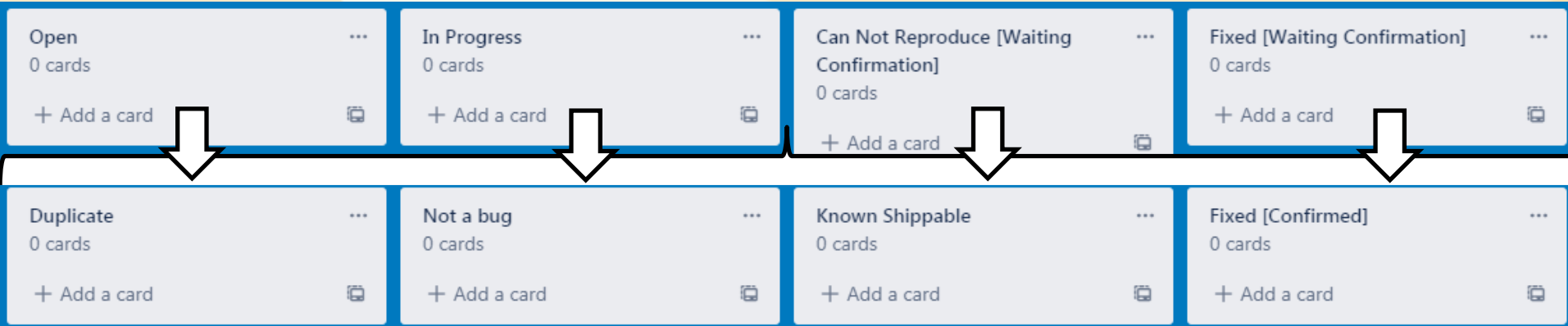
- A developer went in and fixed the bug



Bug life cycle

Closed Statuses

- No more action on the card is necessary



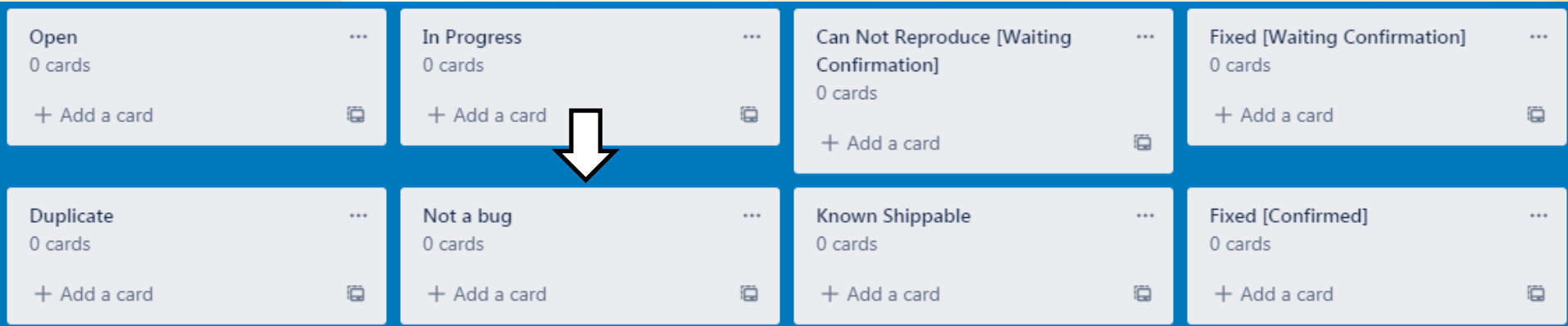
- Entered in the bug database elsewhere
- Comments must reference the bug it is a duplicate of



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



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



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

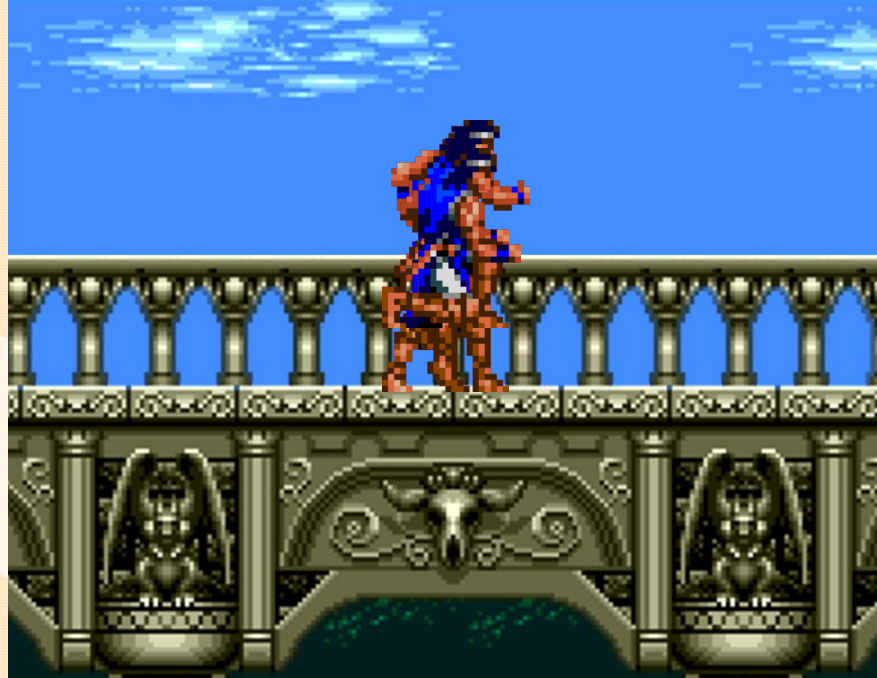


Example

A bug's life

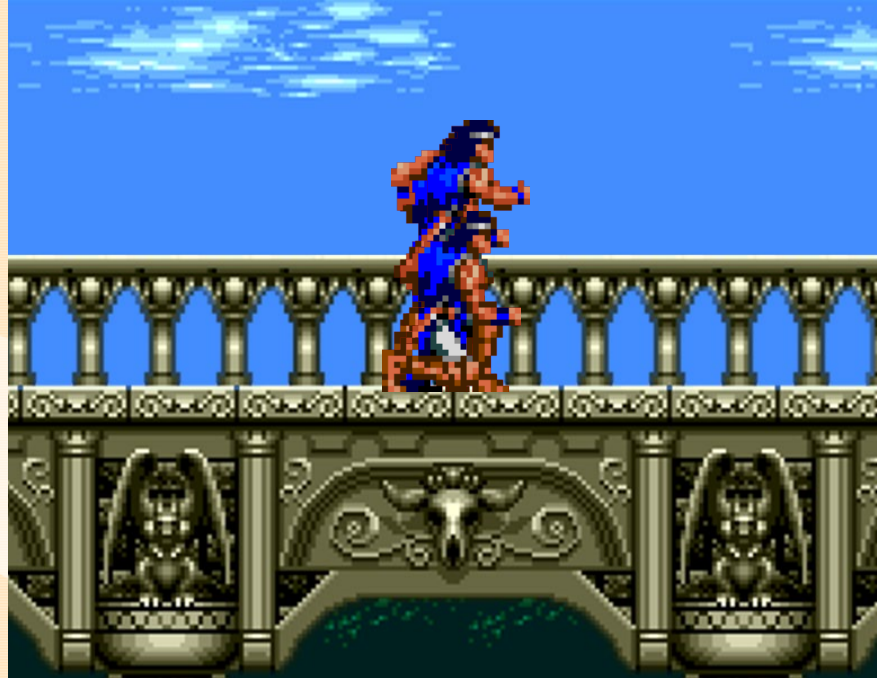
Example: What was seen

- What was seen



Example: What was expected

- What was expected (player)



Example: Bug reported

Collision issue jumping on bridge on level 2

in list [Open](#)

☐ Recurring

Add #tags

S/E & More

Members

Labels

JO +

C - Minor +

Description

Edit

Build Found: QA2

Steps to reproduce:

- 1 From main menu select new game
- 2 Continue game to level 2
- 3 Halfway through the level jump onto the large ornamental bridge


What was seen:

- When the user lands the character floats slightly above the floor of the bridge. This does not happen when walking onto the bridge

Expected results:

- The user walks along the surface of the bridge no mater how they enter it.

Attachments



Picture1.png

Added 2 hours ago - [Comment](#) - [Delete](#) - [Edit](#)

Add to card

Members

Labels

Checklist

Dates

Attachment

Cover

Custom Fields

Power-Ups

+ Add Power-Ups

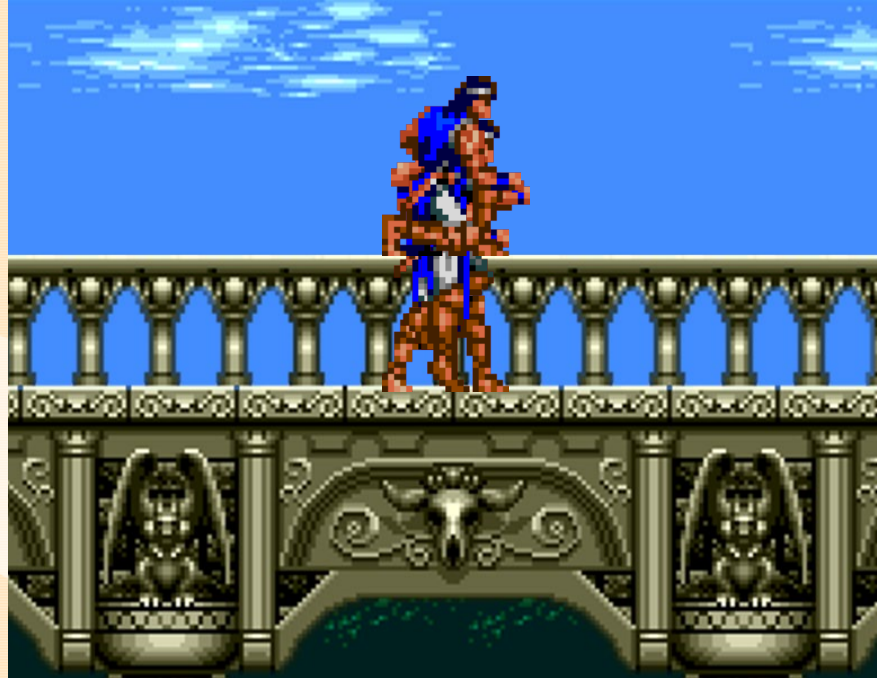
Automation

+ Add button

Actions

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

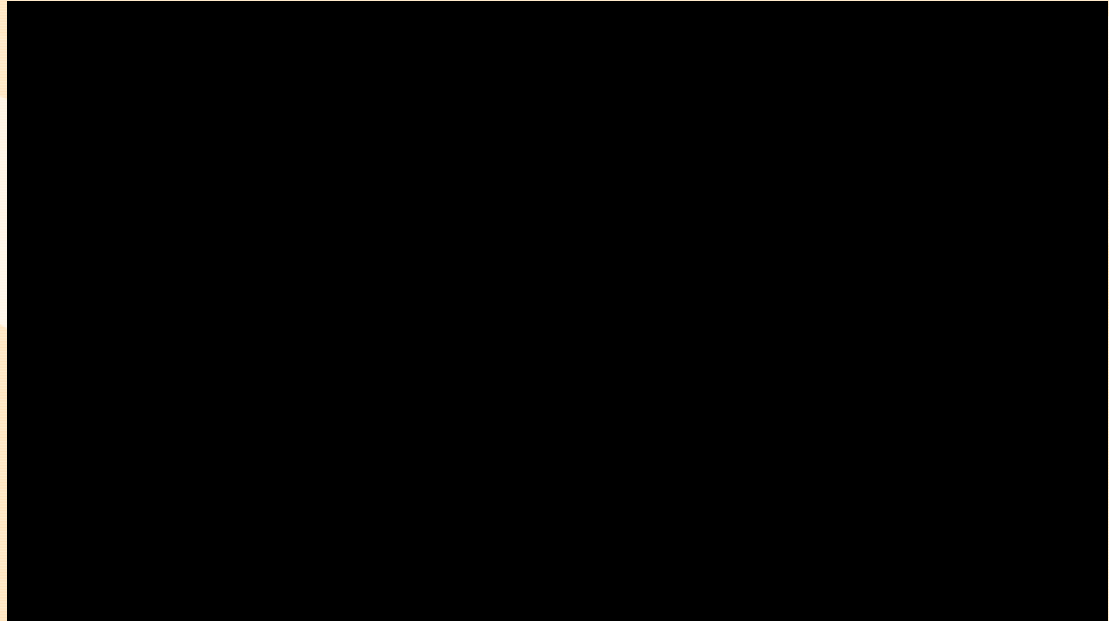
Fix the real problem

- 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

Additional Resources

Steve Wetherill: Opinion—Quality Assurance For Dummies

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



Promotional Materials

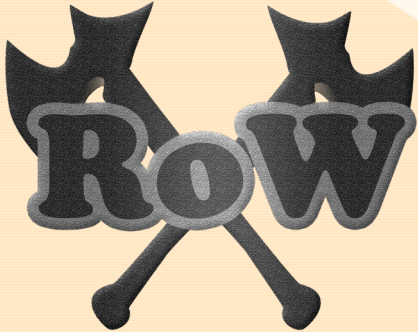
Promotional Materials

- 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

Promos: Game and Team Logos

Create a simple game and team logo

- Printable
 - No solid background
- Readable at a distance
- Simple Word art is fine (though encouraged to do more)



Promos: 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



Promos: Video

- 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>)
- Streamlabs Desktop (<https://streamlabs.com/streamlabs-live-streaming-software>)
- Loilo Game Recorder(http://loilo.tv/us/product/game_recorder)
 - (Not studio or Loiloscope, that adds a watermark)

- Editing

- Microsoft Video Editor (default install on windows 10)
- HitFilm Express(<https://fxhome.com/hitfilm-express>)
- DaVinci Resolve(<https://www.blackmagicdesign.com/products/davinciresolve/>)



Additional Viewing

Konsoll 2013: Marketing Indie Games on a \$0 Budget

konsoll.org - Emmy Jonassen: To become a successful indie game developer, you must first become a successful indie game marketer. Trouble is, for many indies, marketing doesn't come naturally or fit the indie budget.

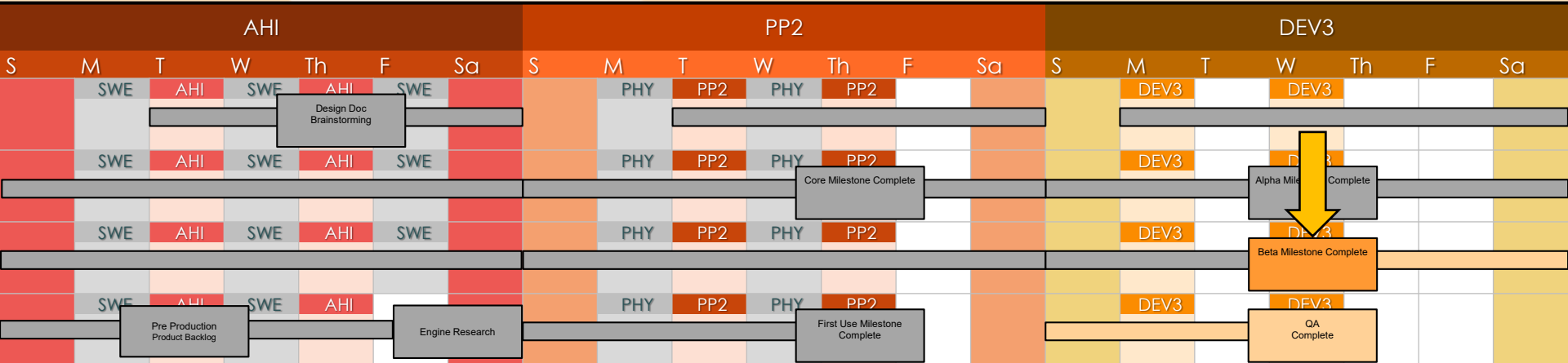


Assignments

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
 - 10 unique bugs 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

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