Preproduction

FROM PROPOSAL TO PROTOTYPE

Preproduction

- At this point, you already have an approved game proposal outlining your game.

- Preproduction is gearing up time to eventually get ready for development of the game.
  - The goal is to complete the game design, produce suitable documentation, and do some technical prototyping to demonstrate its feasibility.

- You need to provide a proof of concept.
  - Preproduction basically proves your team can make the game and that the game is worth making.
  - If you cannot do this successfully, you and your idea may be written off in favor of something else.

Preproduction Documentation

- Several documents are written during the preproduction phase.
  - They help flush out and formalize initial ideas and concepts from the proposal.
  - They provide a blueprint for when the game actually goes into development.

- This documentation includes:
  1. The game design document,
  2. the art bible,
  3. the production path,
  4. the technical design document, and
  5. the project plan.

The Game Design Document(GDD)

- By the end of preproduction, you should have a game design document detailing everything that will happen in your game.
  - This includes information about gameplay, user interface, story, levels, puzzles, and so on.
  - This is equivalent to a functional specification in more traditional software development.

- Expect this document to change frequently and evolve over time.
  - Keeping it electronic and not on paper is definitely a good idea.

The Game Design Document: The Writing Style

- Before writing a design document, it is important to remember what it will be used for.
  - It will serve as a reference during development, so it should be written to be easily navigated and easily read when design details are needed.
- Do not focus your time on making it a stimulating read; instead, focus on making sure it contains all the information it should.
  - Avoid repeating yourself; it is more important to be precise and to the point than to have a thick document.
- Also ensure the document is in a portable format accessible to everyone on the team.

The Game Design Document: The Writing Style

- There are many different design document templates that are used in the games industry.
  - Unless there is a good reason, stick to the one traditionally used within your organization for consistency.

- No matter which template is used, it is likely a good idea to use your proposal as a starting point and expand from there.

The Game Design Document: Table of Contents

- It is odd to mention requiring a table of contents, but it is worth it in this case.

- Since the document must be easy to navigate, a good table of contents is very important.
  - An index requires time and a stable document to build properly, so it might not be an option.

- Make the table of contents as structured and detailed as possible.
  - Do not stop at just the chapter or section level.
  - Go down into sub-sections, sub-sub-sections, and perhaps even sub-sub-sections.

Table of Contents

The Game Design Document: The Overview

- This is essentially a single page summary of the game's design.
  - It may not be useful to developers already on the project, but it will help newcomers or those not yet familiar with the game.

- This summary should include:
  - The game's high concept or focus.
  - A one paragraph summary of the story.
  - Key gameplay features from the feature summary and other important gameplay aspects.
  - A conclusion summarizing the overview and hitting the game's innovations and reasons for success.

The Game Design Document: The Overview-example

- This first person interactive simulation game places the player in the body of Annie the ant throughout her life from hatching to death in the colony. As she matures, the ant grows and her role in the colony evolves. In order to progress in the game, the player must ensure her immediate well-being as an ant, interact with her sisters, and fulfill the tasks that characterize the roles she comes to take over her life. The player experiences the world as an individual ant. The game's interface maps the dominant senses of the ant, smell/taste and touch, to a first-person interactive audiovisual display. The game takes place in a fully accessible and interactive simulation of the colony and its natural and artificial environment. The universe is populated by other ants, and critters. A multi-player version of the game allows several players to interact in the same universe as distinct ants.

The Game Design Document: The Story

- This provides an easy to read narrative of what transpires in the game.

- This includes the following:
  - The setting of the game.
  - Key plot elements, divided into at least a three-act structure (more on this later), perhaps even further.
  - Any back story that is needed to support the game.
  - The main character or characters of the game played by the player.
  - Non player characters, including villains, those supporting the player, and those that are neutral.

The Game Design Document: The Story

- This is essentially a greatly expanded version of the story described in the proposal.
  - The proposal can be used as a starting point, with each story element flushed out in great detail.

- There are a variety of things to be included to help in presenting the story.
  - Any written narrative in text describing the story.
  - Storyboards drawn to mock-up key plot elements and in game moments.
  - Any scripts for dialog and cut scenes.

- If this is not a pleasure to read, figure out why as soon as possible!

The Game Design Document: The Story-example

- The egg hatches, a wave of chemical scents first overwhelms Annie the newborn ant. She instinctively takes a few minutes to get used to moving around and sensing the world. She already has some sense of comfort and confidence, associates the tastes and smells around her with good. She is swiftly attended to by other ants that give her food, reinforcing the association of the smell of others in the nest as "good". Annie is a nurse, so she starts taking care of the queen, the eggs, and the new hatchlings. She fetches food in the nearby food depot to feed the queen and newborns, transports new eggs to the nearby nursery. Through interactions with the queen and the other ants around, her understanding of chemical signals gets refined. She now understands need and her signals (need attention vs. offer help). She starts moving around the world, following the other ants and doing what they are doing. She feeds the newborn larvae, moves the eggs and eventually moves herself up to be a nest keeper. As Annie starts her life as a nest keeper she follows other Ants around the nest to discover how to succeed in this new role.

The Game Design Document: Gameplay Mechanics

- The gameplay mechanics section is one of the most important parts of the document.
  - It is also one of the harder parts to write properly with all the necessary information.

- It is in essence a greatly expanded version of the same section from the game proposal.
  - The ideas from the proposal should be used as a starting point for the design document.
  - This time, all of those ideas and concepts are flushed out in great detail.
  - Avoid assuming anything; be as specific as possible.
  - When done, the game should be completely defined.

The Game Design Document: Gameplay Mechanics

- In the end, the game mechanics section essentially describes how the player will interact with the game world.
  - What actions the player can carry out.
  - What the results of these actions are.

- In this section you are concerned with addressing “what” and “how”.
  - What the player does in the game and how the player goes about doing it.

- In some sense, you can almost think of this section as an extremely detailed first pass on the user manual for the game.

The Game Design Document: Gameplay Mechanics

- Information to include:
  - A genre statement, including any new twists the game makes, and how the game uses or departs from genre conventions.
  - Player capabilities. Be as specific as possible. Describe everything the player can do in the game and how the player does it.
  - The user interface, interaction modes and so on.
  - Any initial start-up activities, in creating or customizing the players' characters.
  - Any maintenance activities the player does with their characters throughout the game.
  - Anything else that seems important.

The Game Design Document: Gameplay Mechanics-example

- Perception
  - Chemical - Smell and Taste
  - Touch
  - Gravity
  - Health/Hunger
  - Temperature
- Actions
  - Movement
  - Pick-up/drop
  - Fighting
  - Communication
  - Perception

The Game Design Document: Game World Behavior

- This section documents how the game world reacts to the players actions.
- It serves to complement the game mechanics section that describes how the player interacts with the game world.
- Things to address:
  - How will non player characters react to the player? What will they do in which situations? How are they triggered?
  - How will non player characters act when the player is not around? What ambient behaviors do they exhibit?
  - How do non player characters interact with one another in the game?
  - What non character elements in the game world react to the player? In what way?
- Remember to be as specific as possible. The more questions you answer, the more likely you will end up with the behavior you want.

The Game Design Document: Game World Behavior-example

- Physical Universe
  - Surfaces
  - Particles
- Terrain - Vegetation – Materials
  - Soil : neutral
  - food – vegetation : green scale
  - ambient particles : green - blue - red
  - Trash : red
- Ant Colony
  - Trail Ants
  - AI Ants

The Game Design Document: Game Elements

- Game elements include characters, items used or wielded by the player and non player characters, and other objects and mechanisms.

- These elements can be combined in unique and interesting ways to create a variety of engaging game experiences.

- Once again, provide as much detail as possible.

The Game Design Document: Game Elements

- Three main types of elements:
  - Characters. These are all of the active, non player controlled elements in the game. They were previously introduced in the story section. For example, game villains.
  - Items. This includes all things that the player can pick up and use or manipulate in some fashion. For example, weapons.
  - Objects/Mechanisms. These are things that operate in some way, but cannot be picked up or carried by the player. For example, doors, switches, and various puzzle elements.

The Game Design Document: Game Elements

- List the items in each class and subclass them as necessary for organization.

- Be sure to include:
  - Physical descriptions of each element.
  - Behavioral or operational descriptions of each element.
  - Definitions of relationships to other elements.
  - Comparisons to other elements.
  - Concept art of each element, if available.

- Include enough information so that a programmer can write code for an element, an artist can create good artwork, and sound technicians can create appropriate effects.

The Game Design Document: Game Elements-example

- Ants
  - Queen: lays eggs (AI only)
  - Egg: hatches (AI only)
  - Nurse: takes care of the newborns and of the queen
  - Nest keeper: takes care of the nest
  - Forager: looks for/brings back food to the nest
  - Soldier: defends the nest
- Other Critter
  - Antlion
  - Ants from other colonies who find Annie or her sisters wandering alone
- Inanimate objects
  - Rock: construction material/rubble
  - Food piece: food for the ant and for the colony
  - Trash: mildly toxic elements - must be removed from the nest/paths of interest
- Landscape
  - Elements of the universe that cannot be acted upon, but that can be perceived...

The Game Design Document: Game Progression

- In this section, the game designer breaks the game down into the events the player experiences, and how they change and progress over time.
  - There should be a very strong correlation with how the story unfolds and how the game progresses as described in this section.

- In many games, the game progression is broken down on a per level basis.
  - Those games that do not have levels can still likely be broken down in some stage-by-stage fashion.

The Game Design Document: Game Progression

- Information to include for each level or stage of the game:
  - Its structure and organization.
  - Its aesthetics: how it will look, sound, and feel to the player.
  - The major challenges, obstacles, or puzzles faced by the player.
  - The part of the story contained within it.
  - How the player will be affected, in terms of difficulty, experiences, and emotions felt.

The Game Design Document: Game Progression-example

- Nurse phase:
  - This is the first stage of Annie's life. Once she is born, Annie is told to follow the other ants back into chamber with the eggs. Annie is shown that it is cold and the eggs need to be moved. The eggs have a "need" smell, experienced nurses leave a "good" trail that leads from the queen to the nursery. Some nurses who are bringing food to the nursery also leave a trail that will lead Annie to the food repository
- Nest-keeper phase:
  - Indicate to Annie that there is a piece of trash or pebble or dead ant that needs to be moved out of the nest. This is expressed by the encounter of pieces of trash (small objects that are slightly toxic), and pieces of rubble (soil objects that are not toxic, but clutter the place). Annie must pick these up and move them out - either directly out of the nest and outside of the nest perimeter, or to some intermediate chambers/hubs where they are picked up by other ants. Ants leave trails of scents that lead outside and to the trash piles. An ant can find its way out of the nest by following other ants that are holding trash.
- Forager phase
  - Foragers must explore around the nest. They can either follow trails left by others, or create their own. Any ant must eat when hungry, otherwise they would die. when Annie finds food, she first eats (max up food level/no more hunger), also stores some food for exchanging in interactions.
- Soldier phase
  - Soldiers must defend the nest against attackers, or go to war to take over some other colony's nest. Soldiers defend the entrance to the nest. They do not leave to go get food. When the ants that are guarding the nest scent something that is dangerous (red) they follow that scent, search for enemies, fight and then come back to guard the nest again. Annie will have to defend the nest a certain amount of times from attacks in order to complete this stage.

The Game Design Document: System Menus

- This is where you describe the menus, options screens, and other screens presented to the player outside the game itself.
  - Since these do not have a direct impact on gameplay, they should be discussed in their own section.
- Be sure to provide descriptions of:
  - The functionality and features are available in the menus and screens.
  - How these menus and screens will flow into each other in the game.
  - How the user will interface with these options.
- Try to be as complete as possible.

The Game Design Document: Poor Documents

- The wafer-thin document. Too few details to be incredibly useful.
- The unstructured document. Too hard to read and use.
- The back story tome. Spends too much time on the story of the game and provides little on the game mechanics and gameplay.
- The overkill document. Provides excessive detail in many areas while skipping others that need to be addressed.
- The pie-in-the-sky document. Has many grand ideas for magnificent gameplay but there is no technical grasp of what is actually possible.
- The fossilized document. If a document is not kept properly up to date, it eventually ceases to be of use to anyone. In some cases, it can even be harmful.

The Art Bible

- During preproduction, it is important to establish a consistent look and style for the game as early as possible.
  - Much of this can be pencil sketches, but colored glossies can have a bigger impact.
  - Notes and annotations of the artwork should also be included for additional references.
  - Descriptions of artistic styles, directions, instructions, and limitations should also be included.
- The art bible can also be the source for story boards and other concept art included in the design document.

The Production Path

- During preproduction, you need to determine how to go from concept to reality, from ideas to something concrete.
- This is called the production path.
- This includes:
  - Art tools, modelers and rendering tools, level editors and design tools, music and sound tools, game engines, software development tools, and so on.
- All of these tools must be compatible!
- This must be worked out now so that costs and timings in acquiring the tools can be factored into the project plan.

The Technical Design Document

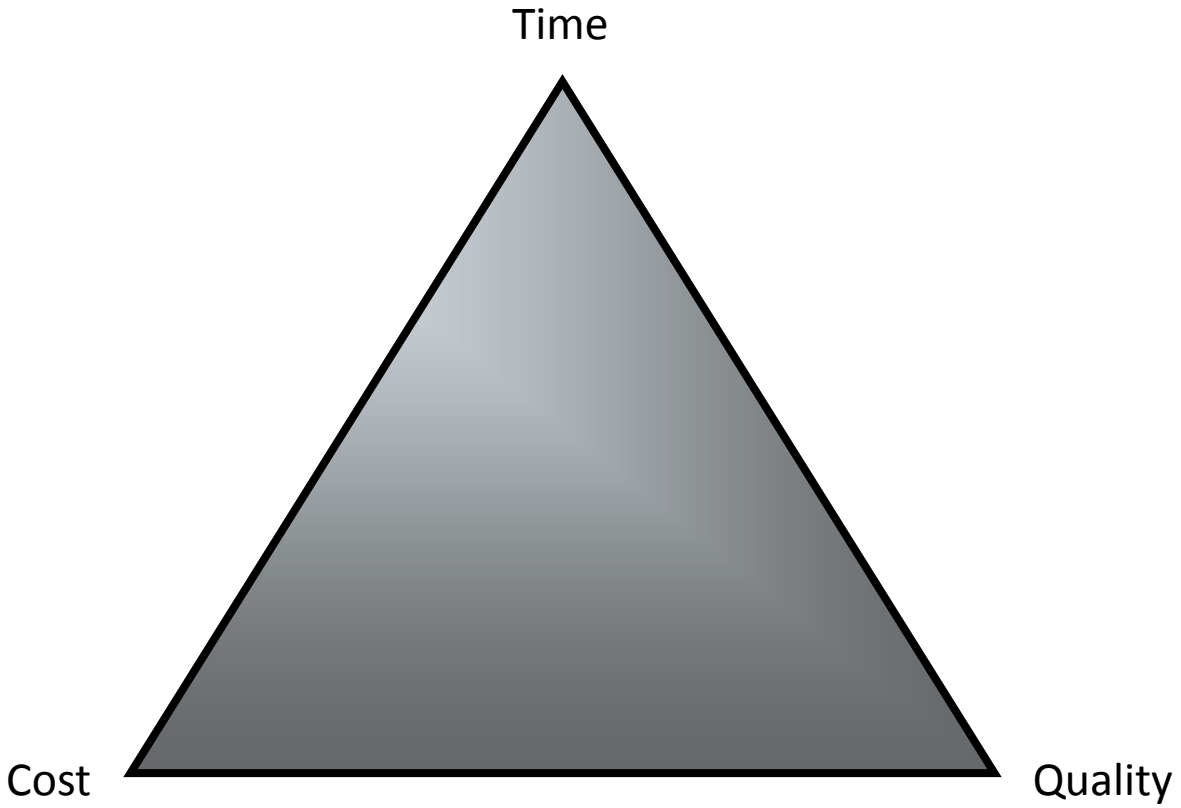
- This document complements the game design document discussed earlier.
  - The game design document describes how the game will function.
  - The technical design document describes how that functionality will be implemented.

- This includes:
  - Software design and code structure.
  - Descriptions of artificial intelligence, animation, graphics, sound, networking, and other technologies used in implementing the game.

The Project Plan

- This is a roadmap describing how the game is going to be built.
  - Start with the tasks to be completed.
  - Establish dependencies among these tasks.
  - Add overhead hours.
  - Use all of this to develop a schedule.
- The project plan usually includes:
  - A resource plan, a budget, a schedule and milestones against which progress can be tracked.
- Software tools and standard software project planning techniques might be able to help here.
- The project plan must be revised and updated throughout the project!

The Project Plan:
The Constraint Triangle



The Project Plan: The Constraint Triangle

- Ideally, we would want all games to cost nothing, to be built instantly, and to have infinitely good quality.
- In reality, in order to change one of the time, cost, or quality goals, we must provide slack by adjusting one of the others.
  - We can decrease time by adding more personnel (costing more money) or by reducing quality.
  - We can reduce costs by using fewer developers (and increasing development time) or by reducing quality.
  - We can increase quality, but will require either more developers or more time to do so.

The Prototype

- The tangible end result of preproduction is the game prototype.

- This is a working piece of software that captures the essence of the game on screen.
  - What makes it special, better than the rest, and what will turn it into a hit.

- It is important to capture the look and feel of the game properly.
  - This may make or break further development.

The Prototype

- Pulling off a good prototype is hard.
  - Much of the technology and content has yet to be started, let alone completed.
- In many cases, most developers simulate aspects of the game.
  - Pre rendering material, for example.
- Sometimes, stand-alone technology demonstrations are used.
  - They might not look pretty, but they show that your goals are reachable.
- Prototyping shows the vision of the game, but also establishes that you can go from ideas to reality in a reasonable and effective way.

After this we will go into the production phase!