Final Game Plan –

**REMEMEBER WHEN YOU ARE A STAGE LOOK AT THE MAIN PLAN… (PRINT THIS)**

Budget -> $400 Max

$99 Steam

$99 FL Studio

$99 Plugins

The tricks to finishing this game:

* **Use other people’s assets when you need to**
* **Keep breaking down tasks until it’s manageable’**
* **It’s not about motivation, it’s about discipline**
* **Failing to plan is planning to fail**
* **Learn from experience and understand that getting help from assets and people is not bad.**

This is a dynamic plan so if you feel something is missing make sure you add it to this list.

**Stages of development:**

1. Writing all the systems + story / scripts in the game (ex. locomotion, ai, movement) – 4 months
2. Designing the world (World, Player, Enemies, Shaders, Materials, UV Maps, Normal Maps) – 3 Months
3. Animating and Stitching together with the scripts – 1-2 months
4. World Design (Placing and positioning everything and building the entire world from a map) setting up pathfinding, marking out locations where events occur, setting up the optimisation of the world, setting up perlin noise and world generation, setting up horde movement throughout the world + proper interactions … – 1 month
5. Lighting and Graphical Effects – encompass light probes, reflection probes, GPU Instancing
6. Adding the story and cut scenes to the end result (all event systems all dialogue systems) implementing the story and adding gameplay cores such as missions and directives. So basically the game is constructed in this phase. Until before all the game was just gathering bones now we will throw it together. – 1-3 (Communication and dialogue systems) months
7. Making the game work from start to finish (Event Systems and Spawning Management) – 2 months
8. Post Processing and Particle Effects + Touch-ups – 2 weeks
9. Making the starting scene/ending scene and setup of the game scene. Beginning title screens.
10. Optimising the entire game – 1 month
11. Music and SFX implementation (player’s walking, sound effects make sure they’re not choppy and they have blended together) … Don’t over crowd the sound system, decrease insignificant sounds etc.… – 1 month
12. UI Menus and Steam Overlays + Steam Achievements etc.. – 1 month
13. Finalising + Releasing Blog – 2 months
14. Testing phase (Friends, Family) – 2 weeks
15. Post Production – 1 month
16. Advertising and making it known + Trailers
17. Publishing – 1 month

During the system writing, it is 100% needed to plan out each system before carrying it out.

* What’s special about the game and how will you market it (Not story).

Currently Working ON :

* Player Controller
  + Ledge Climbing
  + Fixing Base Movement Etc..
* NPC System
  + Behaviour Graph
* World Builder
  + Will need a document for this, but a tool that allows for generation of massive open worlds with optimisation built in, such as doors like used in Firewatch, but you can place these and the software patches it up. Cool stuff. So you can build massive world with blend assets, pass in LODS does stitching, auto mesh generation etc…

**Writing all BASE systems:**

* Editor Scripting
  + *Journal System*
* Story Development
  + Writing the whole story line and a massive document of the outline of the story and the events that will occur.
  + Possible endings and how you will make the player buy the next game
  + Fleshing out the story and making the characters full of emotion
  + Motivations and Backstories that you will tie in
  + Write the different creatures and hordes in the games and how they play a part in the story and tie in
  + Write about the antagonist and her role.
  + The map of the game
  + Write Easter eggs that can be found about the game and some things that people can discover about the forest.
  + How the story affects the forest right now and how the current story is affecting the movement and power of the creatures.
  + List the different bosses you will encounter if you go in a certain direction etc... In addition, how you will defeat them. (How will it affect the story)
  + List the different clans, leaders, friends, traitors and all the aspects throughout the game.
  + Plot twists and Cinematic Cut-scenes
  + Story / Game Integration
* Base Player Functionality
  + Player Controller w/ all features needed (responsive and powerful movement w/ procedural forces)
  + Camera Dynamic Movement (Camera collision, movement) account for bow movement
  + Over the arm arrow shooting (Arrow curve and bend when you shoot, wind accounting, different bow powers). Smooth and aiming.
  + Optimising the code
* Base NPC Functionality
  + Behaviour Editor
  + Custom Regional Path finding
  + Friend NPC
  + Build upon dialogue system
  + Designing the AI States and beginning proceduralised states
  + **Writing the complex + dynamic combat system.**
    - **This entails tactical fighting, so I want smokes, long distance sniping, flashes, emps. I want the combat system to be the most fleshed out part of the game with extremely responsive and smart NPC’s as well.**
  + Realistic NPC (Friend)
  + Writing the communication system what each hand signal means and how your friend will react to each one.
* Player world relations
  + Guide Systems
  + Player and world Interaction (Refer to sheet)
  + Realism and Co-Existing World
  + Realistic sense of time (Time manager and day management + recording)
  + Event system and triggers
  + Proper ledge climbing
  + Regional Movement System (Optimisation) This is extremely important, make sure there are sub-sub regions and each region controls something. For example the most sub region disables and enabled colliders.
* World systems
  + Auto segmenting and LOD tool (Sebastian Lague)
  + Placement of objects in scene
  + Create a perlin editor where the texture is created and a seed can be changed and modified until a desired result is given then a perlin reader script can be made to read it.
  + Painting objects onto scene
  + Photogrammetry process..
* Survival systems
  + **Looting system**
  + Dynamic and Sleek Inventory System
  + Crafting System **Very basic, this is not the objective of the game (like unturned)**
  + World Destruction (UE) and forces when breaking
  + Breaking objects and object life + cracking
  + Life Meters and their impact (Properly measured) – Separate UI menu that opens up attributes and really goes into detail (expand on this later)
  + Health and Damage system – Regeneration period//Injury System as well//Affecting attrs like speed etc..
  + Map System
* Final Vertical Slice Components
  + Saving and loading user data
  + Writing the camera effects
  + Writing UI Effects
  + Release assets that you made on the asset store
* Optimising all code
  + Going through and multithreading code where It can be done
  + Optimising all scripts based on video and implement the C# Job system

During this stage there will be ABSOLUTELY NO MODELLING. Everything will be done through cubes and blank terrain objects to test all the elements, maybe some cliffs may be added but apart from that nothing more.

By the end of this stage all the scripts needed for the rest of the game should be ready so everything can be easily implemented with the graphics. But more graphically oriented scripts will be added later including shaders and scattering.

Base Systems is to get all the hard coding out of the way, which is basically all of the systems which are dynamic and can be re-used. Now we have a small framework on which we can build more and complex things / designing.

Now we go to the asset development and designing the game assets + linking them with my scripts:

**Stages of Designing:**

When modelling life things these things will be done in order:

* Concept sketching
* Defining how the player looks verbally + gathering concept photos
* Tireless modelling + SCULPTING to add detail
* UV Unwrapping
* Rigging the character
* ***Adding tonnes of shape keys for every aspect***
* Then adding proper IK targets to make it easy for me
* Weight painting
* Recording myself in poses of walking etc…
* Animating from live video footage.

1. Designing all characters
   1. The player model
      1. Various tools and weapons + an extensive look into the suit and how to make it more dynamic looking
      2. Loot system – taking clothes, inventory etc..
   2. The friend model
   3. The enemies
      1. Their various weapons and tools + clothes
   4. NPC’s
2. Designing the world elements **Make sure appropriate items are marked as static.**
   1. The major assets
      1. Terrains (Integrated with terrain system + LODs)
      2. Clouds (A & S) – Movement integrated + Fading in the distance (shaders).
      3. Lakes (A & S)
      4. Rivers (Animated and shaded)
   2. Automatic Prefab Generation Tool
      1. Drag and drop models for automatic prefab generation + LOD’s + Auto colliders + Scripts needed and GPU Instancing if required.
   3. The minor assets
      1. All world environmental spread assets (trees, rocks, grass) etc.. w/ shape keys on all of them to create a WIDE variety of prebaked land using perlin noise.
      2. Base objects such as tables, tools, etc… All the items needed for the inventory + crafting system.
   4. World Relevance Objects
      1. Houses, Castles, Forts, Defence Systems…. Based on the story (will be described in the story)…
      2. Easter eggs objects, things that explain some backstory which make the audience go ‘aaaahh’ wow!
   5. Decorative Objects
      1. Such as statues, fountains, temples, shrines, vines, flower gardens.

**Animating and Stitching together all the elements**

* Animating the living things based on recorded footage of me.
* Keep in mind the principles of animations when animating, anticipation is important + mass consideration using sliders?
* **Procedural animations, using the procedural character controller data to modify the animation based on the data.**
* **Foot IK** [**https://www.youtube.com/watch?v=EQ6UKCftHCE**](https://www.youtube.com/watch?v=EQ6UKCftHCE)
  + Locomotion system (will include IK, climbing and foot placement etc..)
    - Anticipation
    - Mass Consideration…
    - Read the Game design document to know what to add for IK.
    - **This system comes after player model…**
* Using neural networks and IK to retarget the bones to the world
* Creating responsive IK to make the models interact with the world in a natural way using Ubisoft technology.
* Combat systems with the Animations to make it feel realistic and powerful.
* Character movement, uncertainty, emotion and IK foot placement.
* Animate the characters communication and the movement and make sure it is dynamic using curves.

Remember, stitching also revolves around adding features + scripts that you may need.

**World Design and World Setting Up**

* Map Design
  + Design the actual map and make sure it is properly designed to give the user some challenge. – Based off concept art and add hidden places, easter eggs, enemy locations camps. Take inspiration from the beautiful concept arts and make it astounding.
  + Annotate the map to display all the regions, what story segment will occur here and how it will impact the game. How will this region look etc.
* Terrain + Pathfinding
  + Creating the terrain and setting up terrain LOD systems + world optimisation and map door systems.
  + Setup pathfinding regions inside the terrain, split based on region and avoid obstacles by auto baking static objects into the nav mesh.
* Asset Placement
  + Begin placing all of ‘major assets’ then add all the ‘World Relevance Assets’.
  + Use the perlin system to spread out all the ‘minor details’.
  + Use the perlin system to add decorative features (or do this by hand, anything is fine).
  + Creating markers for locations and setting up regions where events occur.
* Horde movement + NPC Navigation
  + Make sure the hordes are moving in a natural way
  + World navigation smooth and optimised
  + Hordes move relative of player position + time
  + **Changing environment/horde movement based on story progressions.**
* Optimisation
  + Make sure the world is loading smoothly and running as it should, collisions are working fine and the IK system is interacting with the world in a natural way.

**Lighting and Graphical Effects:**

* Watch loads of tutorials on how to make nice lighting in Unity
* Volumetric Lighting!!! https://www.youtube.com/watch?v=H5v\_X1k02U0
* Adding light probes throughout Unity.
* Adding reflection probes throughout the scene which will be enabled and disabled along side the optimisation system.
* Making soft shadows and baking light maps and get comfortable with the lighting settings, get the most performance + beauty.
* **New unity lighting system**

**Story and Cut scene Integration**

* Plan when and where inside the world different aspects of the cut scenes are going to occur.
* Plan where the different spawning locations are where the game will end and how it will end.
* Then plan where the minor aspects of the story are and dialogues and references needed for that.
* Story progression system
* Making sure that time is working appropriately throughout the game and horde movement is affecting your dialogue and the cinematics.
* Different bosses throughout the game.
* Write all the dialogue and appropriate NPC’s communication
* Every way that the player takes should bring a subset of challenges.
* Create event systems to every region (optimised using some collider) and add dialogue options, dialogue from your friend, NPC showing up.
* Create the cut scenes at all of the cut scene locations, and make sure they are beautiful and smooth.
* Every event can be triggered only once, the trigger may change based on the **story stage. This is to prevent looping.**
* Make sure there is no event overlapping each other and they are queued up.
* Re-test and make sure all of the events are working as they are supposed to.
* Add mission directives at locations and hints of what to do if the player looks lost or he is going in the wrong direction etc…
* Give them missions at major story points.
* Setup achievement points (for future integration with Steam)

**Making the game work from start to finish**

* Making sure spawning is working correctly from start to finish.
* Making sure the game is ending smoothly no matter where you are.
* Adding the death scene and cut scene, when you die before the end of the game.
* Make sure the player cannot go too off track and end up at a boundary.
* Re-test and make sure the events are all safe and nothing is breaking.
* The entire story is being played.
* The story is making sense from all different ways I go.
* Is the story interesting and is the friend NPC and you emotional enough?
* Linking the ending cut scene to some credits.
* Making credits scene and linking it to the menu.
* If it is interesting enough, how can you add a twist at the end?

**Post Processing and Particle Effects + Touch-ups**

* **New unity update on post processing volumes for different processing at different positions**
* Creating a custom FOG Shader (w/ multiple colors)
* Creating image effects in the post processing stack which blend between each other during day night cycles.
* Adding blood effects and all combat particles.
* Add walking, sliding and running particles.
* Add environmental particles such as snow, leaves.
* Lens flares and sun rays casting down on the earth.
* Shaders to make the terrain tiling less obvious.
* Going through the scene and adding decorations where needed and playing the game and seeing what would make this part more interesting etc…
* Eye adaptation tool and create nice eye adaptations.
* Make sure there are options for post processing to decrease the aliasing filter etc…
* Write your own shaders sometimes to learn the basics.
* Adding more animations like cloth animations and sword movement etc…
* Dust getting flung up as you walk, snow foot prints.

**Making a starting scene**

* Make a sweeping shot over the entire forest and cover all of it’s beauty, have birds flying around and castles and show the whole world.
* Get your name and text on the screen and your company name.
* Make the screen slowly delve deeper into the forest and the once beautiful forest turn dark and grim and get’s darker and darker and you see red eyes and danger lurking in the back and the name ‘NEFARIOUS’ just fades into view and a eye closing animation is played and an eye opening animation is played and the camera fades to your little mountain where you and your friend live and your story is told.
* This entire game is like a story being told and the text at the start + the music should be thrilling. Your eyes open and then your friend is waking you up and you get up and put your helmet on. Your friend is panicked and he is trying to wake you up…. -> Story.
* Good post processing and anti aliasing
* Good music in the background, spine chilling and beautiful!

**Optimising the entire game**

* Go through all the scripts and make sure every script is as highly optimised as possible
* Adding the C# Job system to most aspects of the scripts
* Optimise your code
* Go to the profiler and check what is taking up the most time and then optimize. (This should be done throughout the game)…
* Make sure the scripts that are not being used are constantly disabled, and colliders which are not needed are disabled.
* Play the game on lower end PC’s and Computers to make sure even smaller computers can handle the graphics etc.. by modifying the settings of the game (IN THE GAME).
* Remove the configuration screen at the start (<https://answers.unity.com/questions/134444/is-it-possible.html)>

**Music and SFX :**

SFX (This is extremely complicated) :

* Make a list of every sound you will need in your game
* Record these sounds yourself or get it from the internet and use audacity to edit and make it how you want it to.
* Make sure you have nature sounds, combat sounds etc.
* **Buy a mic - $30**

Building a sound system:

* Watch the talk on how game systems actual blend noises together
* Make sure sounds do not feel choppy and they flow to the next sounds.
* Blending of sounds in the background, noises that are more important are given more power.
* Sounds are disabled and enabled based on situations.
* Use the rule where if there are more than x of the same sounds do not over clutter.
* Make sure the sounds system is implemented into the behaviour editor.
* Create a script to easily be able to call on an audio file which is stored in a dictionary.
* Audio editing and blending.

Adding music: (This is your best for creating high quality music : <http://www.soundsonline.com/composercloud)>

YOU MUST 14/month for high quality string, choirs everything you need!

* Buy FL Studio ($99)
* Write the theme of the music
* Learn some music theory (chords)
* Learning and analysing orchestral music
* Asking your English teacher about music and a crash course
* Getting the plugins you need (PB)
* Then you just have to compose the music and keep trying
* Write down the different moods and setup songs for each one.
* Bring it into unity and setup event systems for music and make sure it blends in and out smoothly.
* Starting screen music from beautiful and calm to deathly and dangerous. – Death -> <https://www.youtube.com/watch?v=P-48TIWBQyg>
* Menu screen music
* Credits music (Make it catchy and learn from the legend himself (HANS ZIMMER)
* Crowd sounds and horde movement make sure the noise isn’t over powering.
* Simple sounds like you brushing against the bushes in times of stealth, everything is important…

**UI Menus and Steam Overlays**

* First the menu will be setup and it will be a very dynamic UI and beautiful.
* The menu screen will just be some simplistic UI with the main character looking off into the horizon with the forest behind him and the sun hitting him
* Then when you click play, the UI will disappear and start floating over the forest.
* The UI has to have the ability to change preferences.
* Steam overlays will be added + achievements and high scores.
* I want to setup a forum for the game as well where people can discuss and help each other out because I want to make the game difficult.
* Steam overlays need to be taken seriously and pausing needs to be a feature that is automatically handled through steams pausing.
* ‘Esc’ should also trigger the pause scene.

**Finalising Gameplay and Releasing Blog**

* Final game testing by yourself
* Logging errors (Making error log)
* Release the blog (Hosting)

**Methodical Testing (Gathering data)**

* Send the game out to many people, especially your subscribers and make sure at the end of the game there is a feedback and bug reporting section.
* Especially during the game, they can pause, take a screenshot and send a bug report.
* They can leave comments and feedback at specific sections.

**Re-Iteration based on feedback**

* Take all the feedback and make improvements immediately.
* Improve the graphics and gameplay based on feedback. If the feedback is lag related make sure you add some optimisation.

**Post-Production**

* You must have a company website
* Make sure the website links to your blog
* Make sure the game links to your website
* The website is like marketing so put your latest game trailer on there, information about the game.
* Star ratings it has received, parallax scrolling with the epic fights that they are having.
* Write a thrilling description for the game for steam
* Game logo
* Publish on your youtube channel
* Create an awesome picture to represent the game of your character looking out into the distance with your friend next to you.
* Go back over the game again, make your final backup and buy an external hard drive just for the game.
* **Be proud**

**Releasing the game**

* Hosting your website + blog
* Beginning the rigorous steam release process
* Going over and re-iterating based on their requirements
* If you get into steam
  + Setting up your page
  + Creating a coupe of trailers
  + Banner photo
  + Pictures of the game
  + Features + Gameplay
* If you don’t get into steam
  + Host of website
  + Make it known

**Advertising and making it know**

* Create a trailer using some epic music and using the forest sweep over scene but this time adding different text and scenes.
* Trailer example - https://www.youtube.com/watch?v=qdy8S9ttKqo
* Adding combat scenes and an epic ending scene.
* ‘A battle of friendship and power’
* ‘A story of betrayal and loyalty’
* Releasing YouTube ads
* Creating multiple trailers
* Publishing on facebook
* Publishing on youtube ads
* Learn more about this field later

**“HARD WORK IS THE KEY TO ALL SUCCESS”**