Design Document

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Asteroid Clicker Game

Genre and subgenre analysis

Clicker games, also known as idle games or incremental games, are a subgenre of casual games that involve players repeatedly clicking or tapping on the screen to earn in-game currency or resources. The genre is characterised by a simple and addictive gameplay loop, where the player earns currency by clicking and then spends that currency to purchase upgrades that make clicking more efficient or automated. The games often have a minimalist aesthetic and a sense of humour, with the upgrades and achievements often referencing popular culture or internet memes.

My asteroid miner clicker game can be classified as an idle game, as it involves a similar gameplay loop of clicking to earn resources and then using those resources to automate the mining process. The game also shares the minimalist aesthetic of other clicker games.

Two specific games within the clicker game genre that can serve as inspiration for my asteroid miner clicker game are Cookie Clicker and Adventure Capitalist.

Cookie Clicker is a classic example of a clicker game, where the player clicks on a cookie to earn cookies, which can be used to purchase upgrades that increase the rate of cookie production. The game also features a prestige system, where the player can reset their progress in exchange for bonus cookies and other rewards. The core systems and mechanisms of Cookie Clicker include the clicking mechanic, the upgrade system, and the prestige system.

Adventure Capitalist is another popular clicker game that involves the player managing a virtual business empire, starting with a single lemonade stand and expanding to other industries. Like Cookie Clicker, Adventure Capitalist features a simple clicking mechanic and an upgrade system that allows the player to automate and optimise their business. The game also has a multiplayer component, where players can compete with each other to earn the most money in a set period of time. The core systems and mechanisms of Adventure Capitalist include the business management mechanics, the upgrade system, and the multiplayer component.

For my asteroid miner clicker game, the core systems and mechanisms could include the clicking mechanic, the mining operation system, and the upgrade system. The player would start with a basic mining setup and would need to click to earn resources, which could be used to purchase upgrades that would increase the efficiency of mining and eventually automate the process. The game could also feature a prestige system, where the player could reset their progress in exchange for bonuses that make future playthroughs easier or more rewarding.

Clicker games are a subgenre of casual games characterised by a simple and addictive gameplay loop of clicking to earn resources and using those resources to purchase upgrades that automate and optimise the gameplay. The asteroid miner clicker game can draw inspiration from core systems and mechanisms of other popular clicker games such as Cookie Clicker and Adventure Capitalist.

Hypothesis / Interrogation / Design Goal

I aim to develop an asteroid mining game that follows the core design principles of tiered progression in popular clicker games like Cookie Clicker. This means that players will start with basic mining operations to mine asteroids and gradually accumulate more advanced operations and upgrades as they progress through the game's tiers. Each tier will offer new goals to keep the gameplay engaging and rewarding. This will come in the form of soft goals as the player will not be presented with a “mine x number of minerals” objective but rather the player will keep working towards gaining more operations and upgrades which will exponentially increase their mineral gain to close the gap between purchase and upgrade prices while these will simultaneously increase exponentially essentially moving the goal posts as the player progresses.

To achieve this, I will focus on creating a compelling gameplay loop that incentivizes players to keep clicking, mining, and investing their minerals into new upgrades and mining operations. I will also aim to balance the game's pacing and difficulty to ensure a satisfying sense of progression without making the game too easy or too frustrating.

My goal is to create a fun, addictive, and challenging game that captures the addictive personality of tiered progression games while offering a unique and exciting twist on the genre through its asteroid mining theme.

Design Notes & Process

Design Flow

- The player clicks on the asteroid to mine minerals.
    - The amount of minerals mined each click is based on the number of mining probes owned and the number of upgrades purchased for the mining probe.
- The player can then use the minerals mined to purchase more mining operations(buildings) to automatically mine minerals.
- The player can use the minerals mined to also upgrade their mining operations which will increase the minerals gained every second.
    - The players have to at least own 1 of the mining operations they wish to upgrade.
- The player can get a new contract by gaining a large amount of minerals which will reset their progress but their base mineral gain will increase.
    - The players need 1 trillion minerals to move on to the second contract and the price increases significantly with each contract. (the third contract requires 3 trillion minerals)

System Structures

The game will feature a UI menu on the left side of the screen where players can access most of the game features like purchasing mining operations, upgrading mining operations, viewing their stats and contract details. On the right side of the screen is the asteroid the players can click on to manually mine minerals.

Explanation of design choices:

- Easy Access to Features: Having a UI menu on the left side of the screen where players can access most of the game features makes it easier for players to navigate the game. Players can quickly access different sections of the game without having to go through multiple screens. This can improve the overall gameplay experience and reduce frustration for players.
- Centralised Information: Placing most of the game features in a UI menu on the left side of the screen also makes it easier for players to keep track of their progress and resources. Players can view their stats and contract details at a glance, without having to switch between screens. This can improve the player's engagement with the game and help them make informed decisions.
- Interactive Gameplay: Placing the asteroid on the right side of the screen where players can click on it to manually mine minerals creates an interactive gameplay experience. Players can actively participate in the mining process and feel a sense of control over their progress. This can increase player engagement and satisfaction with the game.

Value Chains

The game is made up of multiple gameplay elements:

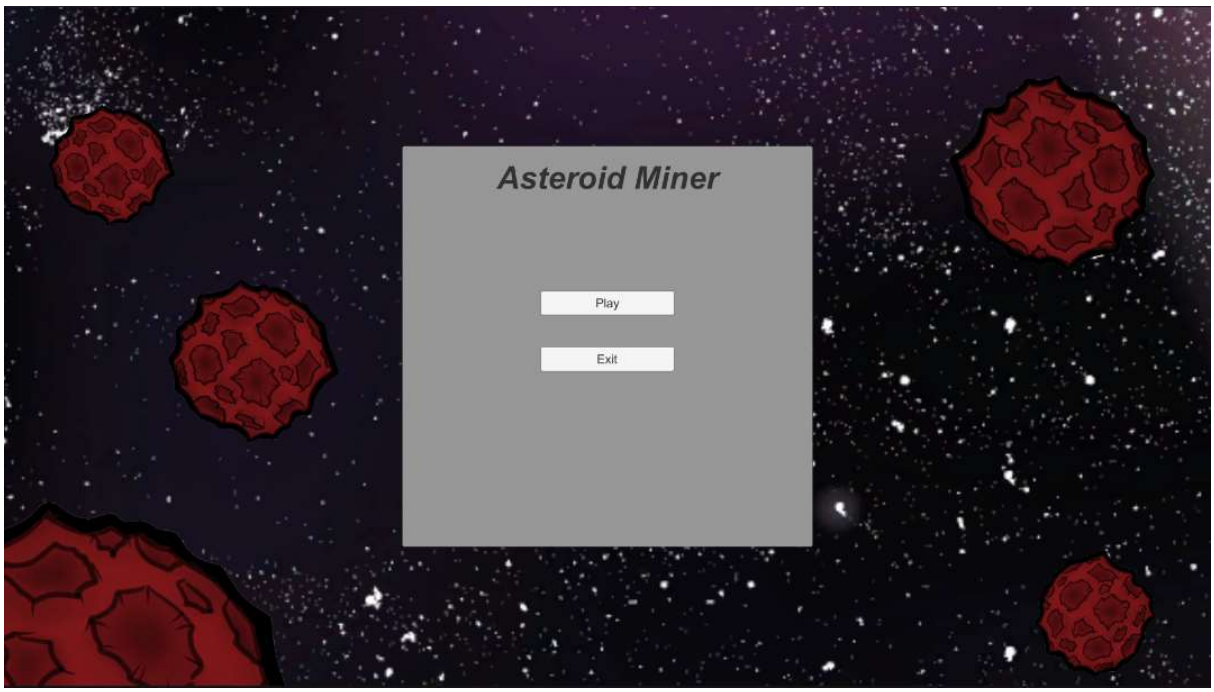
- Primary Currency
    - The primary currency is the minerals which are gained by mining the asteroid through clicking or through the exchange currency which is converted into minerals each second.
- Exchange Currency
    - The exchange currency is the minerals per second which is produced through the generators. This currency represents the automated mining of the asteroid through mining operations. Every second the minerals per second are converted into minerals.
- Generators
    - The generators are the mining operations which are purchased using minerals and produce MPS(minerals per second). As the player purchases more mining operations of a single type the price increases by 15% with each mining operation.
- Multipliers
    - The multipliers are found in the upgrades for the mining operations as when a mining operation is upgraded its MPS is multiplied by 2. This is applied to all mining operations of that type. If the player has 1 Prospector Ship(mining operation) which alone produces 8 MPS and then proceeds to upgrade it, it will produce 16 MPS. If the player then purchases 2 more Prospector Ships

making it 3 in total they will all together produce 48 MPS. If the player proceeds to upgrade these it will increase the overall MPS to 96.

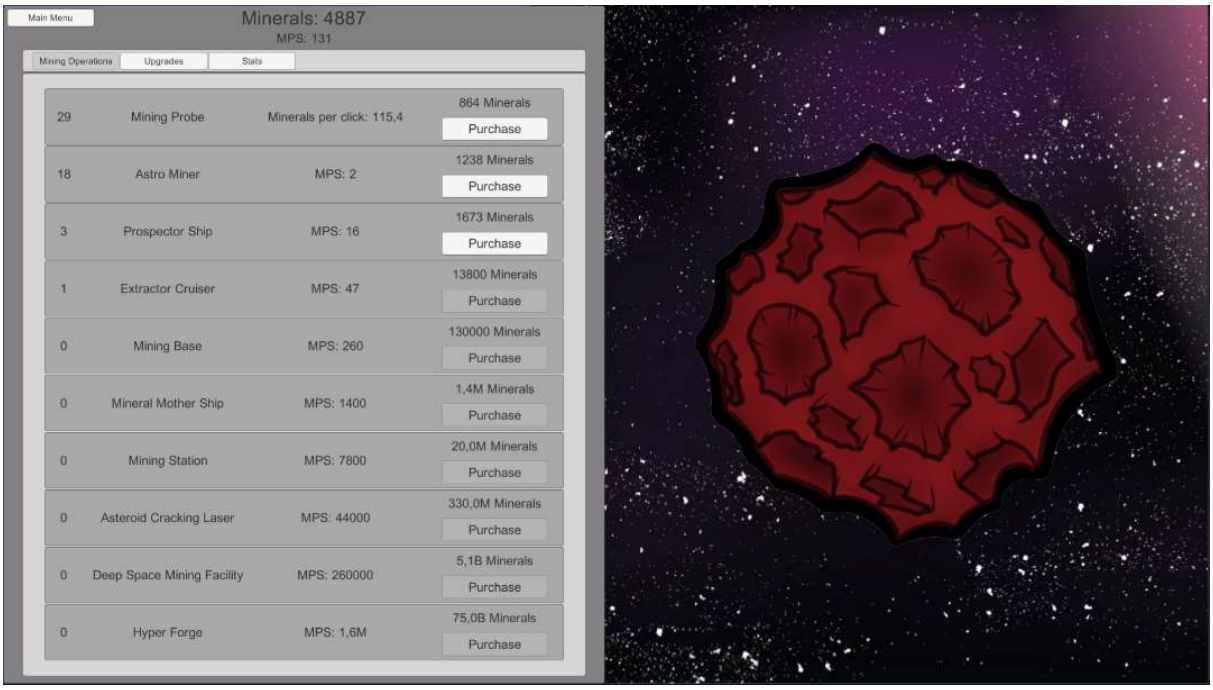
- Prestige (Contracts)
    - The prestige system of the game is found in the contracts which represent the players mining contract to mine the current asteroid. The player can move onto the next contract by having a large amount of minerals.(1 Trillion to move to the second contract)
    - With each new contract the players base minerals gained per click increases by 1 (for contract 1 it will be 1 mineral per click, for contract 2 it will increase to 2 minerals per click)
    - Similarly with each new contract the base MPS of each mining operation will double. The first contract has no effect and the second contract will have a base MPS modifier of 10% and the third contract will have 30%.

Screenshots

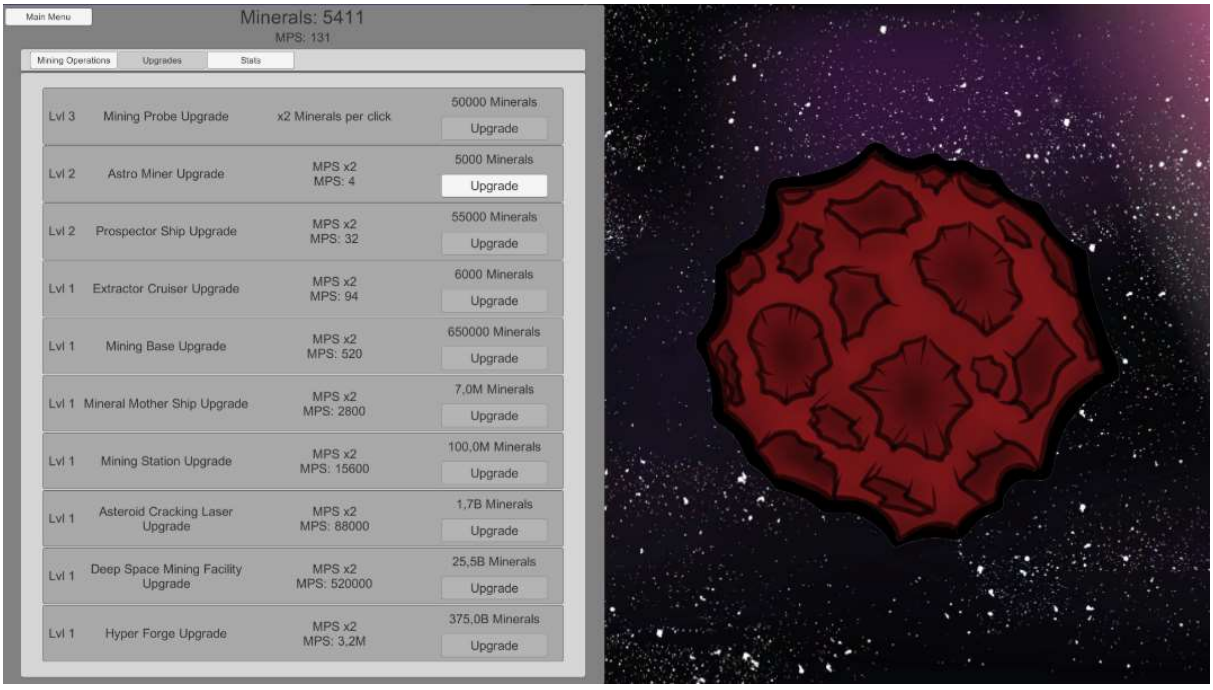
Main Menu



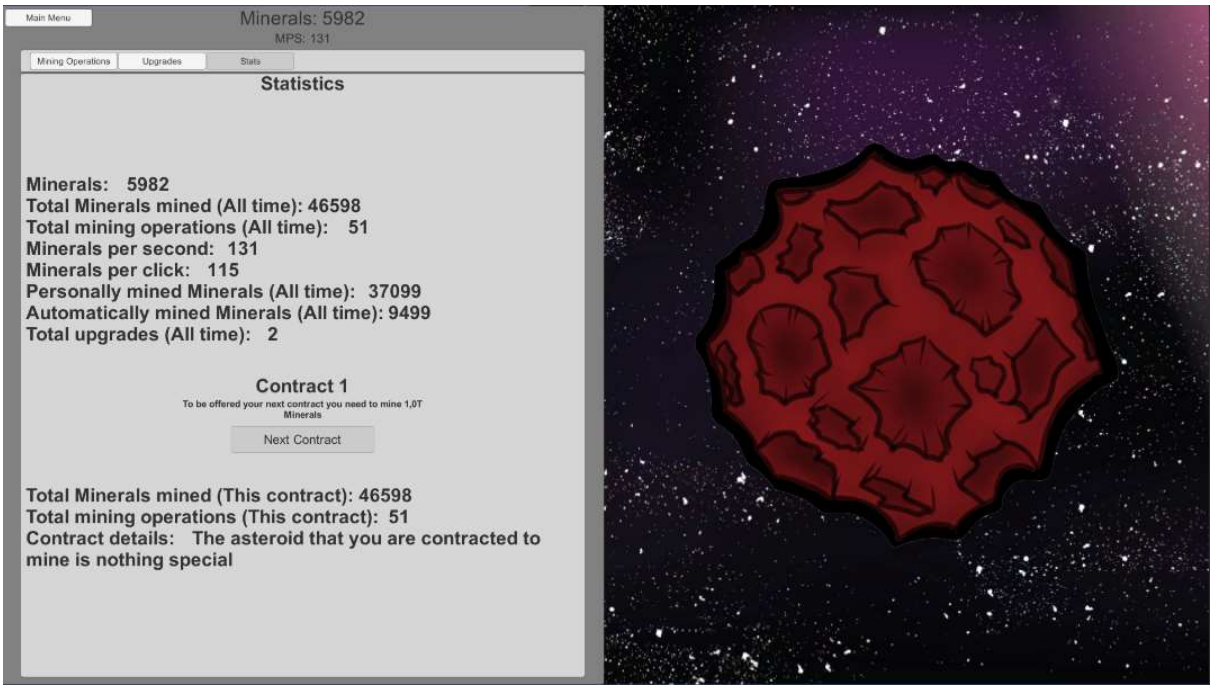
Default Game Screen



Game Screen Upgrades



Game Screen Statistics



Design Process

Brainstorming

In this stage I analysed the game's concept and genre to identify the core systems and mechanisms that could make the game engaging and rewarding. The inspiration was drawn from popular clicker games such as Cookie Clicker and Adventure Capitalist to create a game that captures the essence of tiered progression in cookie clicker games.

Design

In this stage I began designing the game's core systems and mechanisms based on the brainstorming process. The design flow includes the player clicking on the asteroid to mine minerals, purchasing mining operations to automatically mine minerals, upgrading mining operations to increase mineral gain, and unlocking new contracts by accumulating a large amount of minerals. The game's UI was also designed to provide easy access to features and centralise information to enhance the player's engagement with the game.

Development

In this stage I began writing the game's code and implementing my ideas into the game. The development process involved implementing the game's core systems and mechanisms, testing them myself to ensure that they work as intended, and refining them to improve the game's pacing, balance, and overall quality.

Playtesting

In this stage I had the game tested by friends and family with the goal to break my game in order to identify any bugs, glitches, or design flaws that could affect the player's experience. Playtesting also helped to gather feedback and suggestions from players to improve the game's design and mechanics. I discovered that players found the core economic steps were too large and it took too long to overcome each step, so I adjusted the price increases from 25% to 10% as well as the MPS multipliers from x4 to x2. However this change was too large as the players found the game to be too easy now and so I worked on finding a middle ground by placing the price increases to 15% which I found worked well.

Iteration

In this stage the feedback and suggestions gathered from playtesting were used to refine and improve the game's design and mechanics. The iteration process involved making changes to the game to address the issues found by my playtesters and improve the game's overall quality. The game was playtested again to ensure that the changes made during the iteration process did not introduce new bugs or design flaws. This process continued until the game reached a satisfactory level of quality and was ready for submission.

Reflection

When I began working on this game I had a clear understanding of what I wanted to achieve which was to create a game that captures the essence of tiered progression in clicker games. I wanted to achieve this through the economic steps in the form of major points at which the cost of upgrades outweigh the production of minerals. This is achieved through the player's acquisition of more mining operations and their respective upgrades which will exponentially increase the player's mineral gain to make the gap between prices smaller while the prices get larger making the player play a game of catch up until the prices are cheap and then when they purchase enough upgrades the prices will become expensive and so they will have to work towards them again.

I took inspiration from other idle clicker games like Cookie Clicker and Adventure Capitalist and made an analysis of their systems and mechanics in order for me to utilise them and iterate them further to fit into my game. This helped me to have a framework to implement my features into my game and then make adjustments as a saw fit to ensure a satisfying user experience. While developing the game an obstacle that I encountered was creating a user interface that was both easy to use and visually pleasing. My aim was to ensure that players could effortlessly access all of the game's functionalities and features without feeling confused or overloaded through a single screen on the left and just three buttons to switch between the menus. I had to experiment with several versions of the UI layout before arriving at the ultimate design, which enables players to interact with the game's diverse systems smoothly and provides the player with enough information to strategically plan their purchases and upgrades.

Another issue I encountered when developing my game was the coding and linking of all the different systems in my game as there is a large amount of maths going on in the background of my game and at first I struggled with balancing this to ensure a fair tiered progression system and an overall good user experience. Once the primary features of my game were implemented I decided to start working on my prestige system which I renamed into the contract system to better fit into the theme of my game. This system helped create long term goals for the player as they would have a large value to work towards. I feel this worked well with my already implemented systems which in essence set the player short term goals as they try to progress through the economic steps through the purchasing of more mining operations and upgrades. The feedback that I received from playtesters was in support of the contract system as they found that after a few of the economic steps they found themselves becoming less and less engaged with the game but when the contract system was implemented playtesters found that it kept them more engaged and encouraged them to keep playing to overcome the contract goal. Refining and playtesting the game were essential in providing players with a more polished and enjoyable experience. I received constructive feedback from playtesters which helped me identify areas that needed improvement and allowed me to make necessary adjustments to the game's mechanics, balance, and UI. The iterative process played a significant role in enhancing the game's overall gameplay experience making it more engaging and rewarding.

I feel a sense of accomplishment for the development of my incremental game as I feel it successfully captures the addictive nature of incremental games with my systems being tied well into my theme. I did struggle with some aspects of the technical side of development such as the coding and linking my systems however from this I found many solutions and workarounds to these challenges which has helped me grow as a programmer and help me realise the importance of the iterative process and feedback loop. However my game is not perfect and there are certainly improvements that could be made to ensure an even better gameplay experience but as a game designer I recognise the fact that no game is ever finished and that there is always room for improvement. Overall I found the development of my incremental game to be a breath of fresh air from the usual games I develop and a valuable experience as I have learnt new skills in the design process and in balancing the game to ensure an engaging and fair experience for players. I now feel that I have a good understanding of what makes incremental games an enjoyable experience through the understanding of the elements that make up a successful clicker game.

References

Asteroid image:
https://imgbin.com/download/xuyukXYW

Background image:
https://in.pinterest.com/pin/538883911644953733/