Independent Study Direction Exploration

Reference
FrankenStorm TD: Prologue: TD + Mazing + Roguelite
[Tower Defense]
[Mazing] (Patrol-Points for enemies)
[Roguelite]: Replaybility:
- Randomness
  - Different add-ons(buff combined with debuff) each round
    - Buff & debuff relations may be changed depending on the build
  - Number Randomness: +xx% attack -xx% speed
- 'Lite' & Positive Progress: Add-ons can be purchased after the battle, so they can be taken to the future battle permanently(limited slots)

[Type of enemies & towers]: Only 1 type of tower and 1 type of enemy at the beginning. This can be changed via add-ons.
- Tower
  - Extra Projectile/Range/Explosion Radius/Damage/Speed, some debuff
  - Do Area Damage, some debuff
  - Ultimate Range, enemies will ignore the maze
- Enemy
  - +Health, -Speed
  - +Speed, -Health
  - -Health, - Speed, Ignore Maze

Gems TD & a lot of similar TD in war3: TD + Maze + randomness
Towers can be upgraded by merging. The tower you get each round is randomly generated

Loop Heroes: Roguelite+ Deck Build
[Roguelite]: Replayability
- Randomness
  - Different enemies/buildings → both extra benefits & danger
- Lite & Positive Progress: Extra power-ups can be purchased via the gathered resource.
- Choose when to leave: 30% resource if die in battle, 100% if leave at camp. The resource can be taken out of the battle for permanent power-ups.

Warriors of the Nile: Turn-Based Tactics + Roguelite
      RPG Elements (3 people team: warrior + mage + ranger with different builds)

Into the Breach: Turn-Based Tactics + Roguelike
- Pre-Customized Build (Squad) with in-game power-ups
- Known Enemy action for the problem-solving & chess experience
- Simple Number for each status (Compared to RPG)
- Terrian Mechanic(damage, special effect, blocking enemies from spawning)

Faster Than Light: Strategy + Roguelike

Survival(Resource Management) + RTS(Unit Management) + Customized Spaceship

Disgaea: Turn-Based Tactics + RPG

Role-Playing Progression

Bad North: RTS + Tile-Based

Using Tile is easier in the development compared to SC2, War3. etc

Starcraft 2: RTS

Different Modes: COOP, Campaign, PvP

Circle Empires: RTS

Different Modes: COOP, PvP, Conquer, Boss Hunt, Defending, etc

Experience System: Get Experience by "Attack" Behavior

Using Circles instead of a big map

Dungeon 3: RTS + TD + Mazing

- Ground & Underground, 2 different levels on the same map
- Randomness
    - Excitement when exploring a mystery area of underground
        - Finding Resource(Mines location is random compared to SC2?)
        - Possible Enemies & Nests

Dungeon Warfare: Progression + TD + Physics

Towers can be upgraded before the battle

Award After each battle

Orcs Must Die: TPS ARPG + TD + Physics

3D version of Dungeon Warfare

TPS & Build with heroes, equipment, units, traps

Dwerve: Top-Down ARPG + Adventure + TD

The character can build Tower during the battle with limited resource

Art of War Red Tides: RTS/TD + PvP(1v1 - 3v3)

Build buildings that will produce units automatically, destroy the opponent's tower

This is common in War3, Sc2, Dota 2's Customized maps

SC2 Battlegrounds: RTS + Auto-Chess

Merge cards, the card is a combination of different units and be able to produce more units in the game according to its functionality, RTS-Control all of your units and fight with the opponent.

Clash Royale: TD + Deck Build

Castle Cardians: RTS + TD + Deck Build

Side-Scrolling, Resource Management, Two-ways of enemies, Defending Waives, Deck Build of Building + Units + Magic

Age of Darkness: Final Stand: RTS + TD

Mindustry: Resource Management + TD + Building Pipeline

Things to think about

Roguelike:
Replayability, Randomness, Different Builds, Player Skills & Learning Curve,
Roguelite:
Extra Replayability and naive-friendly by permanent power-ups.

Problems about randomness & build:
Ex: SC2 COOP
   Random Mutations *VS* Weekly Fixed Mutations
   Uncertainty(lead to an all-rounder build) *VS* prepared build & commander collaboration
How to provide players a satisfying experience(instead of upset them with the 'bad'
randomness? → uncertainty vs strategy planning)
Ex: Can not make the build "complete"
Pseudorandomness？
Ex: Explore mystery items *VS* So many Wiki nowadays
Should there be a built-in index? Are they public to the player at the beginning or need to be
unlocked during the gameplay?

Progression & Replability
Can tower/items able to be upgraded? In a way of Resource Management?
Will the level or power-ups be generated randomly?
Will there be different builds to solve one problem?
Will the player's skill matter? How?
Does replayability matter?
   https://bippinbits.itch.io/karawan An Example of Resource Management Strategy Game
with all fixed events, levels, and limited solutions. Almost no Replayability & Skill improvement
after the player solve the game.

Independent Study

Design:
As much as possible focus on design: a prototype that engineering work is reasonable.
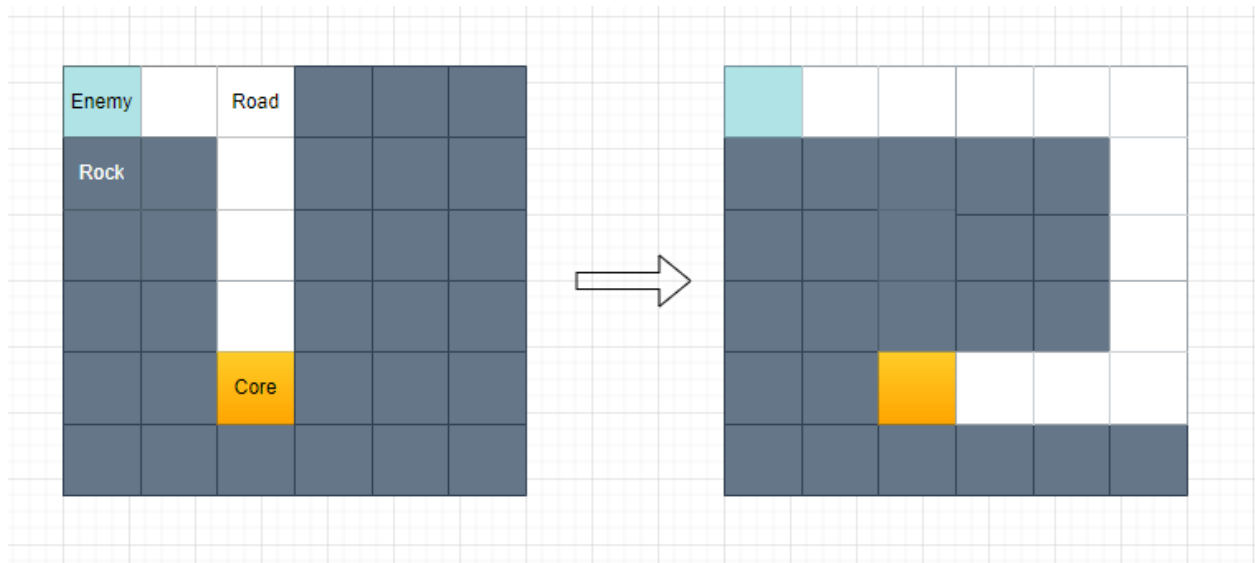What is the goal of this prototype?

Tech:
Need a list of what players can do in the game: list of functionalities.
What is most important for the first playable prototype?
what can I do for that in one week?

Directions

Dir 1: TD + Maze + Roguelite

Level idea inspired from Dungeon 3's underground structure

One Resource: Gold
Automatically Generated
Gold Generate Speed can be upgraded in-game → trade-off

Maze:
Can spend Gold to destroy Rock or generate Block(Generate should be more expensive?)
There must be a path for the enemy, and it should be the shortest path (A*?)

Roguelite:
Random path at the beginning
Destroy Rock may encounter different events(spawn enemy, buff, debuff)
Choose random Buff & Debuff after each wave
Skill Tree that can be used to upgrade after the battle

Train Units: Build buildings that will send soldiers automatically to the Enemy Portal
What's the point of the path & maze?
Extra time, room for a combination of trap&soilder?

TBD [Summon Enemies?] is that possible to let the player make extra portals at the preferred place for extra challenge & reward? Reference: Loop Heroes.

What can be practiced?
Design multiple stuffs that can be made up of different builds and they are balanced. (System Design?)
Balance of the resources
Any way to practice level, AI or tech design?
Any way to practice making a strategy game? How to expect a player's decision?
Different choices players can make and why? What good choices are?

Success&Failure: Avoid the enemy to reach the 'core'
Enemy will be stronger and stronger by waves

Development:
Design
Tile system (Existed Unity Asset Store Example)
            (Tags: Rock, Road, Block, Attackable Building, Invincible Building, Core, etc)
Path Finding
Tower system(Unity Asset Store Example can be learned)
Unit system(hp, move speed, atk, atk speed, def, etc)
Unit AI(Move, Attack) → FSM should be enough
Resource System
Buff System
UI: Click Tile, Modify Tile, Buy Things, Choose Buff
Iterate Design & Development

Meeting Notes 2022.01.28 with the advisor:
Describe the behavior of Enemies?
How the player can change the map? What they can do?
Describe the relationship between pieces.
Is this Balance? Different parts of systems.
Spreadsheet.
The idea of making this roguelite.
First-Level-Prototype should focus on functionality, not on strategy.

Dir 2 Turn-Based Tactics + Physics + Mini-Game
2D Top-Down View?

Extra "Mini Game" after choosing some actions
Reference:

Phoenix Point → manually shooting

Swords & Souls: Neverseen → trainning mini game

Physic
Reference: Orcs Must Die, Dungeon Warfare. etc
Need to do more research & thinking

How to make a difference?

What can be practiced?
AI Design? (for the enemy)
Level Design? (for the different levels) → how to help tell the story?
System Design?
Encounter Design? How to work with the system?

Development:
Design
Week
Tile system (Existed Unity Asset Store Example)
Unit Stat system
Unit AI(Behavior Tree) → hard part of this
UI: Choose Tile, Units, actions

Meeting Notes 2022.01.28 with the advisor:
Enemy AI → real player control it

Dir 3 RTS(or Turn-Based) Focus on Resource Management
Many Resources
　　　　Balance different resources
　　　　Reference: A Dark Room? Some Idle Games?

Randomness

My Previous Pitched Project:

Design Sketch

Idea
A strategy game in which you are the last one of an advanced race who needs to rebuild the sustainable ecosystem and save species in a procedurally generated world.

Core Loop
1. Transforming the terrain by building devices.
2. Save species on the planet.
3. Balancing the ecosystem.

Mechanic
- Build a sustainable ecosystem to be able to survive on this new planet (procedural generated). The resource is limited, they may grow, but how fast will you consume them?
- Random events that will bring positive/negative influence on your system. Climate Changes, Disease, Meteorite, Discover Ancient Technology etc. vs Environment, Animals, etc.
- Do strategic thinking and make trade-offs during the random events: play safe or risky with a better result? Being prepared(stack resources) for unexpected bad things or utilizing everything you have so far?

References
1. Ecolibrium: http://www.vgtime.com/game/1007.jhtml
2. Spore
3. Eco(Strange Loop Games)
4. Terra Nil
5. Mindustry

https://docs.google.com/document/d/1hsNauY3vRJH4IIhpYZFpiVqk3VQQkQXZj8PeZKmU-HA/edit
https://docs.google.com/presentation/d/1zRIfvlYVdAxriM9S8Yz7YXjma_H3SAFa7N4q3Fl3z_U/edit

What can be practiced?
　　　　System Design especially on the resource management part of the strategy game.

Development Cycle:
Design
Tile system
UI
Terrian system, Units, cycle.

Meeting Notes 2022.01.28 with the advisor:
Hand-Design a map first instead of procedural generation

Meeting Notes 2022.01.28 with the advisor:

Think about: What is the Experience Difference compared to the reference?

Design the First-Week Prototype → Identifying that is essential to have early
What level of detail? Designer → what is important? Engineer → what is important?

Dev blogs: Itch, twitter. **Pick one to focus on.**
Watch the talks.
>   https://www.gdcvault.com/play/1012356/One-Page
>   https://www.gdcvault.com/play/1017708/Simulating-a-City-One-Page
>   https://en.wikipedia.org/wiki/Conway%27s_Game_of_Life
>   https://www.youtube.com/watch?v=eZfj7LEFT98

First Dev log Entry due next Friday.