

How A.I Change the process of Designing a Game

Soowan Kim

Designing a Game

- Designing a game needs a lot of time
- From conceptualization to publishing, it may take an hour for some game
- But it also may take a decade till held to a player
- And team needed for one game? From 1 person to 300+



Game Design method

- There are many ways to design a game, due to a team, or companies, or leader of the team

Conceptualization

Set up, what kind of game should be designed

Prototyping

Using paper or engine prototyping to find whether it is fun or not

Programming

Code to make game run



But what take so long

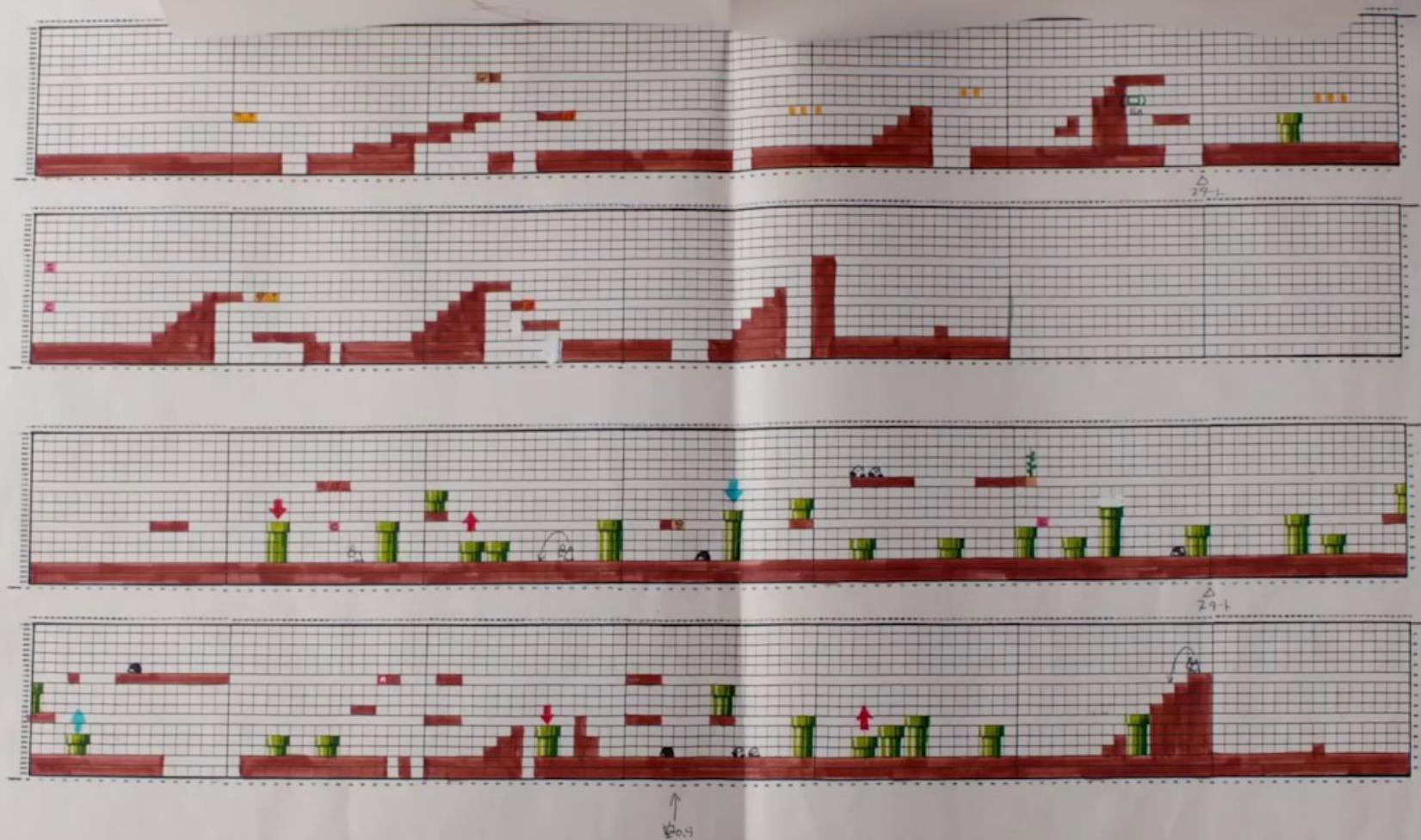
- How art and Designer thinks
- All though designer propose a concept specifically, there is, or there must be a gap between designer and art have different sight of view



Earlier days

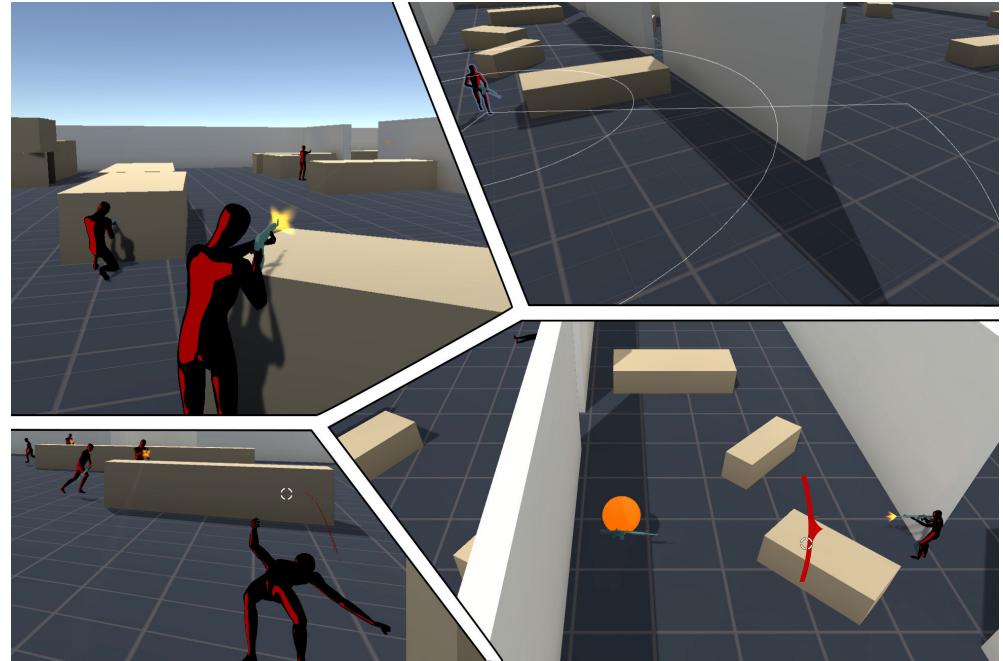


Earlier days



A.I in Game Design

- How A.I were used in developing a game
- Enemy build, cooperate gameplay, randomized puzzle



Arise of ChatGPT

- Designers can approach to share their purpose to the programmer
- Fast prototyping, fast playtesting = fast publishing
- Interactive feedback whether this game makes sense
- But, although programming is easy, there is some area that programmer needs

But Art,,,



How we Communicate 1



Figure 1 costume design guide

Figure 2 Pose guide

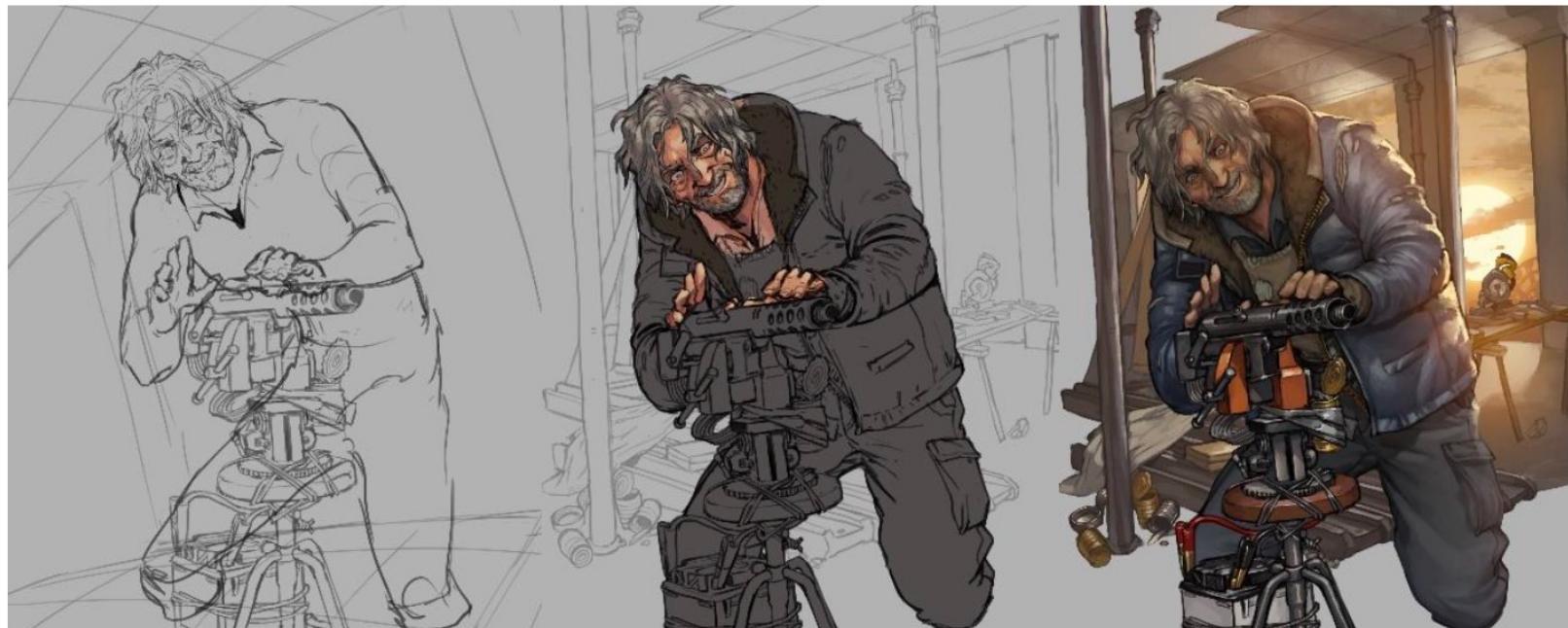
How we Communicate 2

- The Costume design guide is provided with the following information:
 - - The costume design guide is provided with the following statement:
 - - Consider the image provided, outfits look warm perhaps picked up from the luxury shop inside the building.
 - - Compared to the illustration, the image is relatively clean because it's from the past.
 - - Clothes have no blood on them but do not seem to have been washed in more than a few weeks.
 - - Shorter hair and beard
 - - Various tools for making traps

How we Communicate 3

- The pose guide is provided with the following information:
 - - Interior suggesting inside the High Rise Hell (skyscraper)
 - - The top of the Ferris wheel that can be seen out the big window tells that the building is a skyscraper in Atlanta. The sun is setting so the reddish light seeps into the room.
 - - Crudely made turrets and uninstalled traps are scattered around the room.
 - - Here and there, refrigerator food packages and opened cans of food are rolling around. There's an old sleeping bag in the corner with the shape of a human impression.
 - - Beaming looking up the camera and seems satisfied with the birth of a masterpiece (the turret)
 - - The facial expression would convey the state of confusion best when looking directly like the image provided.
White breath to show that it is cold

How we Communicate 4



Generative A.I.

Generative A.I.

DALL·E 3



Using Generative A.I



voxel 3d, voxel pixel art of supercell color, Medieval elf sorcerer character, game character, tall and skinny race, holding a wand of dark magic, wand full of dark red energy, witty shape, large top and small bottom, warcraft character shape, isometric voxel::3, bright atmosphere, vivid colors, made with three-dimensional pixels, super deformed, pixel art intricate, pixel art, hd, 3d, unreal engine, realistic photograph, hyper real hyper detailed. diorama, mounted on a square pedestal with multicolored tiles. bright background, full frame shot --q 5 --ar 2:3 --s 800 --no beard --no cross --no skull --no shield

Using Generative A.I



voxel 3d, voxel pixel art of supercell color, Medieval wizard characters, game characters, witty shape, large top and small bottom, warcraft character shape, isometric voxel::3, bright atmosphere, vivid colors, made with three-dimensional pixels, super deformed, pixel art intricate, pixel art, hd, 3d, unreal engine, realistic photograph, hyper real hyper detailed. diorama, mounted on a square pedestal with multicolored tiles. bright background, full frame shot --q 5 --ar 2:3 --s 800 --no mustache

Using Generative A.I



voxel 3d, voxel pixel art of supercell color, Medieval sorceress character, game character, tall, skinny race, holding a magic wand with jewels, wand full of blue energy, witty shape, large top and small bottom, warcraft character shape, isometric voxel::3, bright atmosphere, vivid colors, made with three-dimensional pixels, super deformed, pixel art intricate, pixel art, hd, 3d, unreal engine, realistic photograph, hyper real hyper detailed. diorama, mounted on a square pedestal with multicolored tiles. bright background, full frame shot --q 5 --ar 2:3 --s 800 --no beard --no cross --no skull

Using Generative A.I



Menu

<https://www.youtube.com/watch?v=ytkA5n4kMAM>

Using Generative A.I



<https://www.youtube.com/watch?v=TPZ-KsKpxPs>

Nowadays



<https://www.youtube.com/watch?v=sCv4jqI5URY>

Furthermore



The Smallville

Furthermore

Generative Agents

arXiv, April, 2023,



Figure 2: The Smallville sandbox world, with areas labeled. The root node describes the entire world, children describe areas (e.g., houses, cafe, stores), and leaf nodes describe objects (e.g., table, bookshelf). Agent remember a subgraph reflecting the parts of the world they have seen, in the state that they saw them.

Furthermore

Morning routine



Waking up



Brushing teeth



Taking a shower



Cooking breakfast

6:00 am

...

7:30 am

7:45 am

8:00 am

Catching up



Packing



Beginning workday

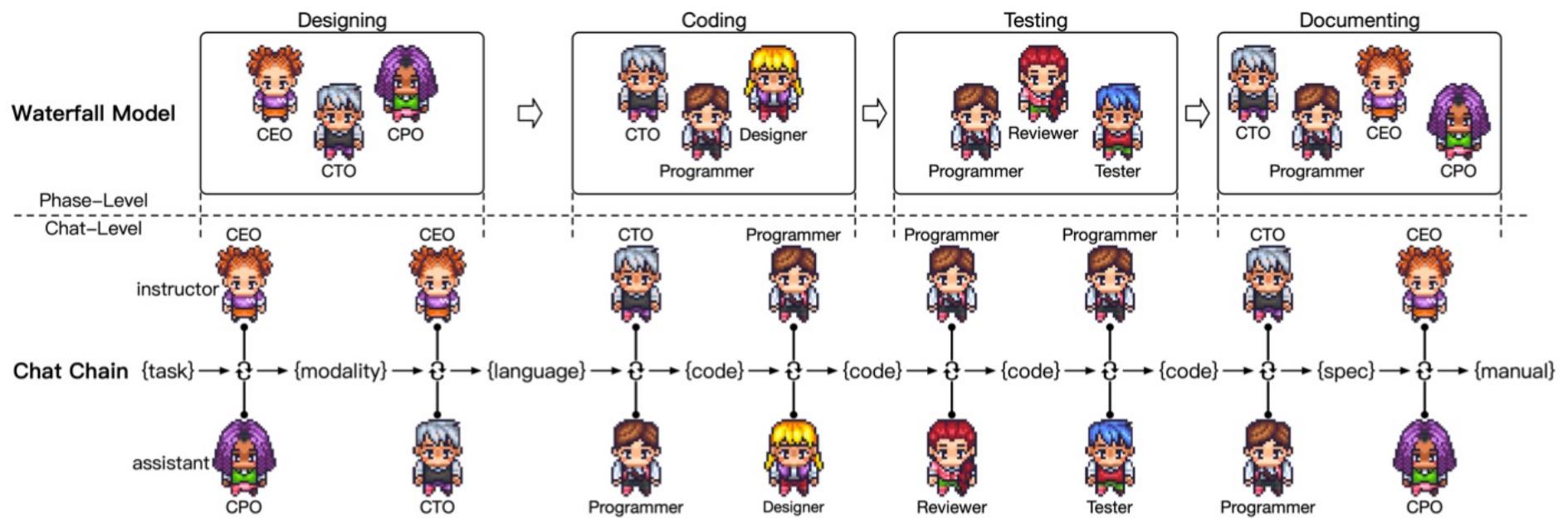


Expanded



Communicative Agents for Software Development

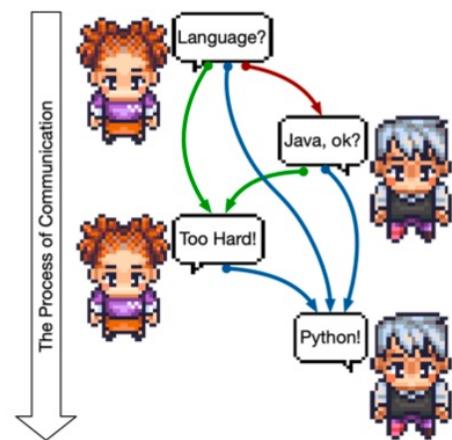
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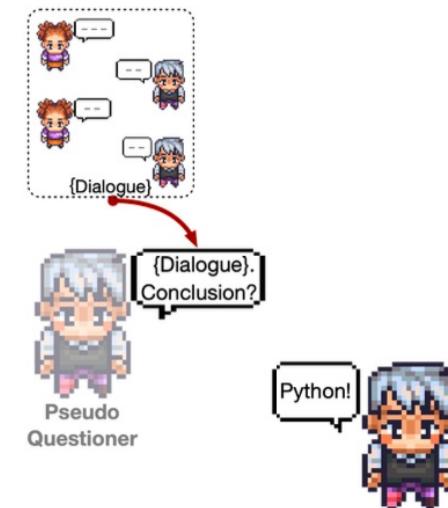
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(a) Role Specialization



(b) Memory Stream



(c) Self-Reflection

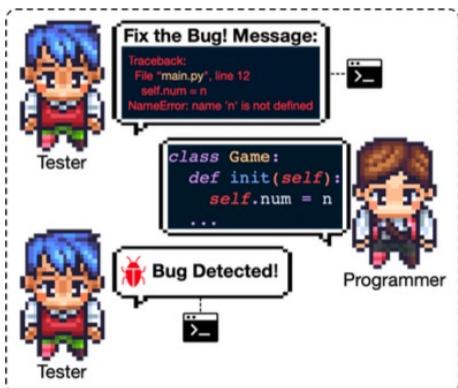
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(a) Naive Instruction in Coding



(b) Thought Instruction in Coding



(c) Naive Instruction in Testing



(d) Thought Instruction in Testing

Expanded



Expanded

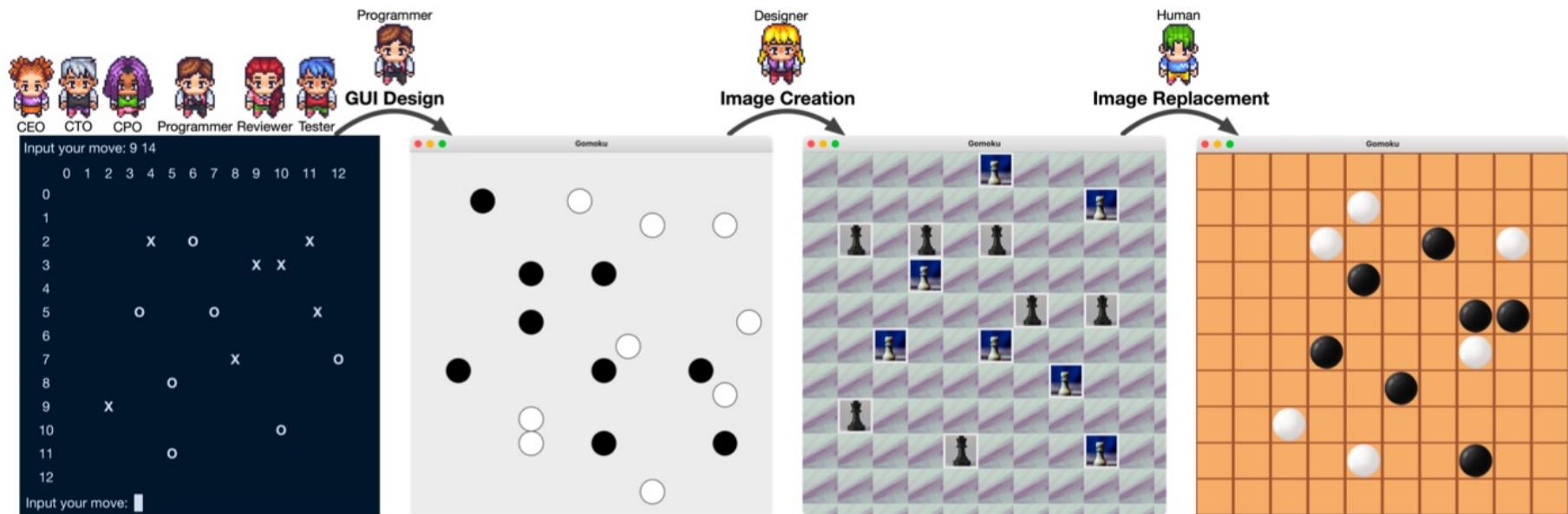


Figure 9: The produced software of the task: “*design a basic Gomoku game*”.

Expanded

Designing: Programming Language



: CEO (Chief Executive Officer)



: CTO (Chief Technology Officer)



: To satisfy the new user's demand and make a desktop application realizable, you should propose a concrete programming language.



: Python with the Pygame library is a suitable choice for implementing a basic Gomoku game.



: Great! Python is a versatile and widely-used programming language that will be suitable for implementing a basic Gomoku game. Its simplicity and readability make it a popular choice for beginners and experienced developers alike.



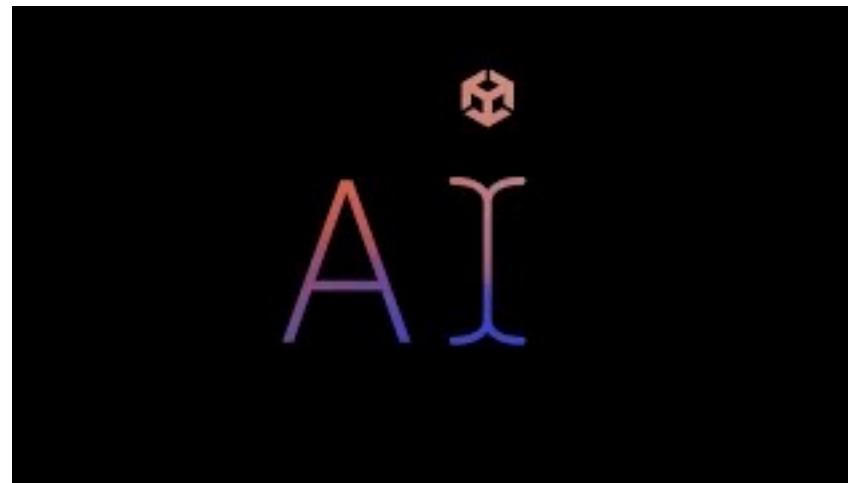
: Let's get started with the development of the basic Gomoku game in Python using the Pygame library!



: <END> Python.

Conclusion

- Of course, A.I Really help in the industry. Especially on some game companies
- But it doesn't mean that A.I can replace all the programmers or art
- A.I is just one of the method in designing a game to make the process efficient
- It's ... just a tool



Thank you