



trAIner

the AI game

"We were supposed to make AI do all the work and we play games but we do all the work and the AI is playing games!"

- Andrey Karpathy

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INTRODUCTION

Single, Multiplayer cross platform game

- Implementing the concept of Artificial Intelligence in a JAVA based application.
- **trAIner** is an absorbing, immersive game experience
- Lets the player develop and train their own AI
- Lets the user build his own maps

CREATORS

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AUDIENCE

- Gaming Lovers
- Technology enthusiasts
- Artificial Intelligence geeks

FEATURES

AI opens the door of an new era of playing video games

Play the
game

Build
your
own
maps

Let the
AI play

TOOLS AND TECHNOLOGY

Tools:

- IDE's IntelliJ, Eclipse
- VIM
- Slack
- Trello

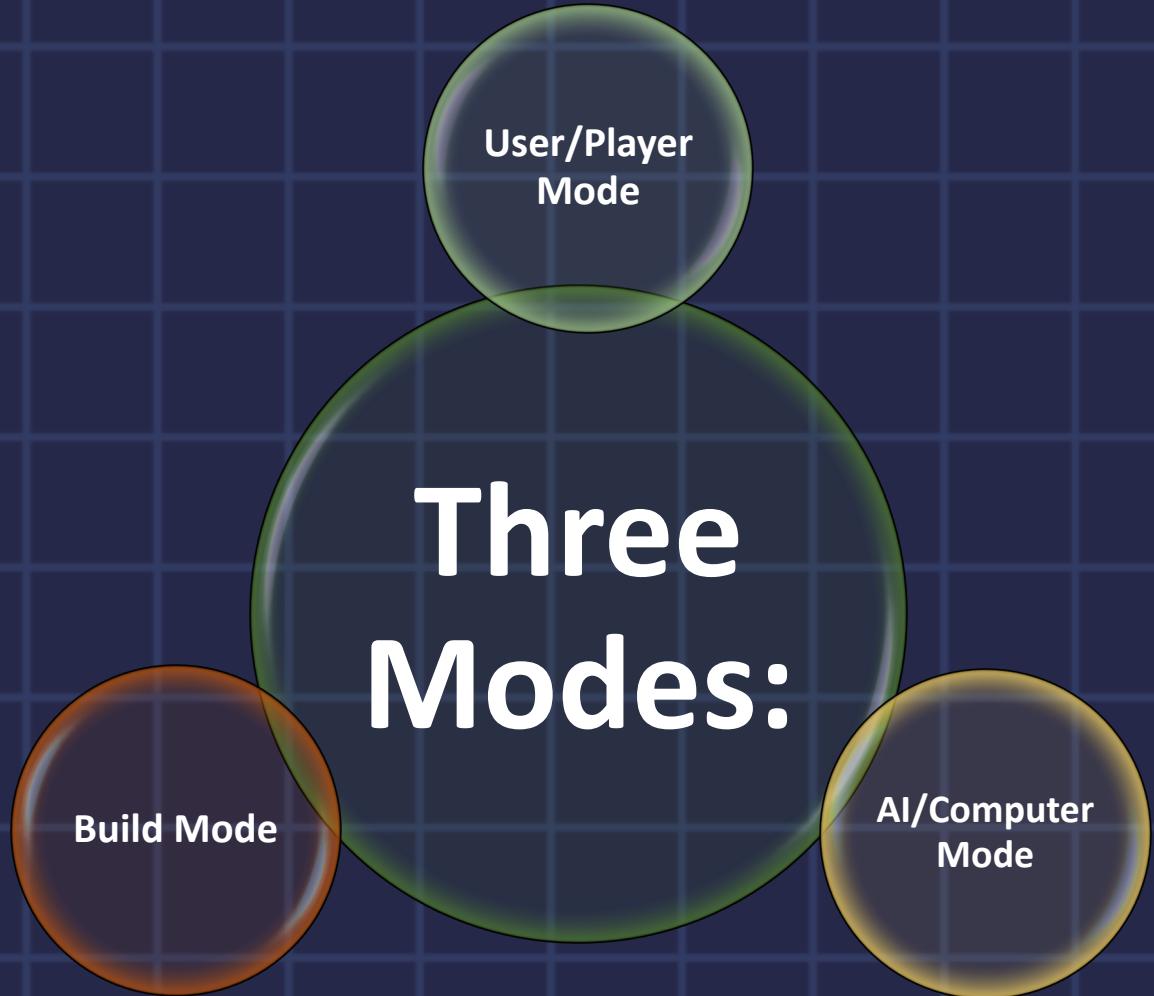


Technology:

- Java
- Genetic Algorithm
- CSV



FUNCTIONALITY



FUNCTIONALITY

User / Player Mode:

- Play the default loaded map
- Load different maps
- Build own maps

Build Mode:

Build custom maps:

- Place/delete building blocks
- Place/delete enemies

Save maps

FUNCTIONALITY

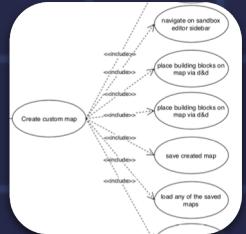
Let AI do the JOB!

AI Mode:

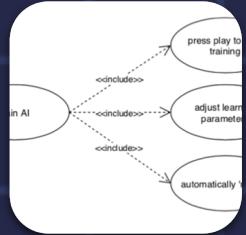
- Train your AI
- Load different maps
- Modify AI parameters
- View AI performance statistics

DIAGRAMS

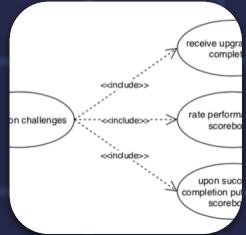
Use cases:



Build Map



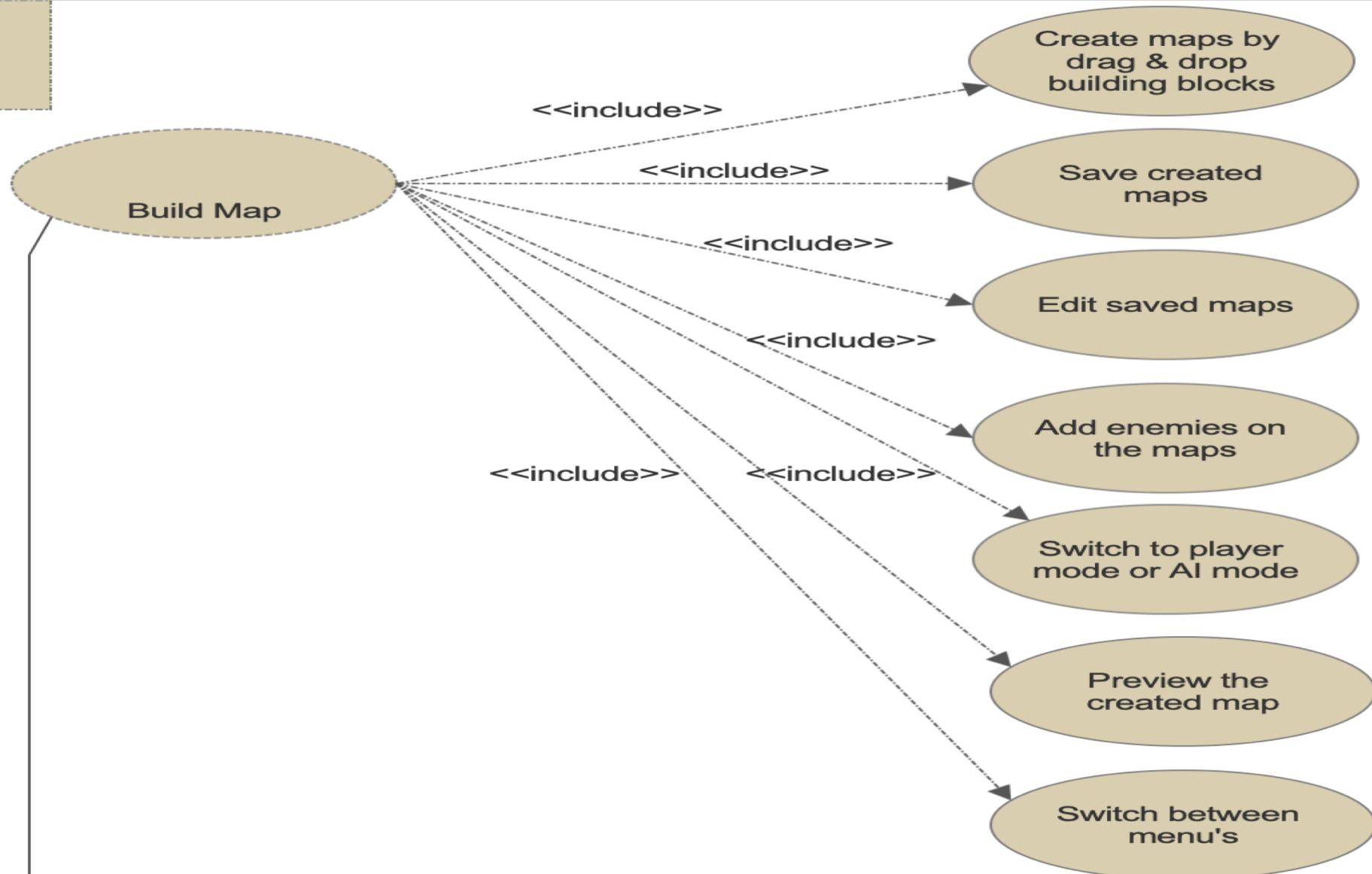
AI Game



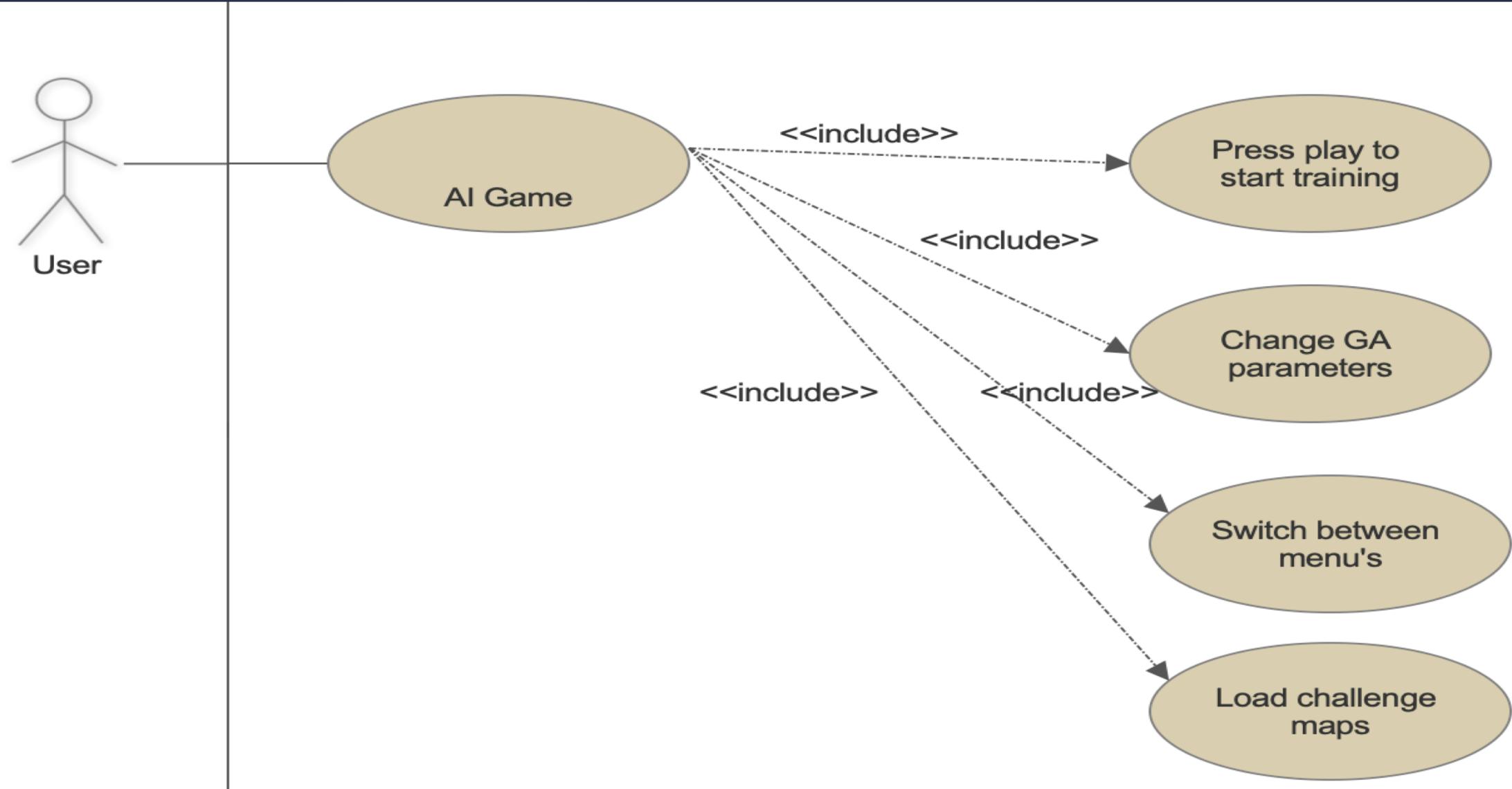
Player Game

BUILD MAP

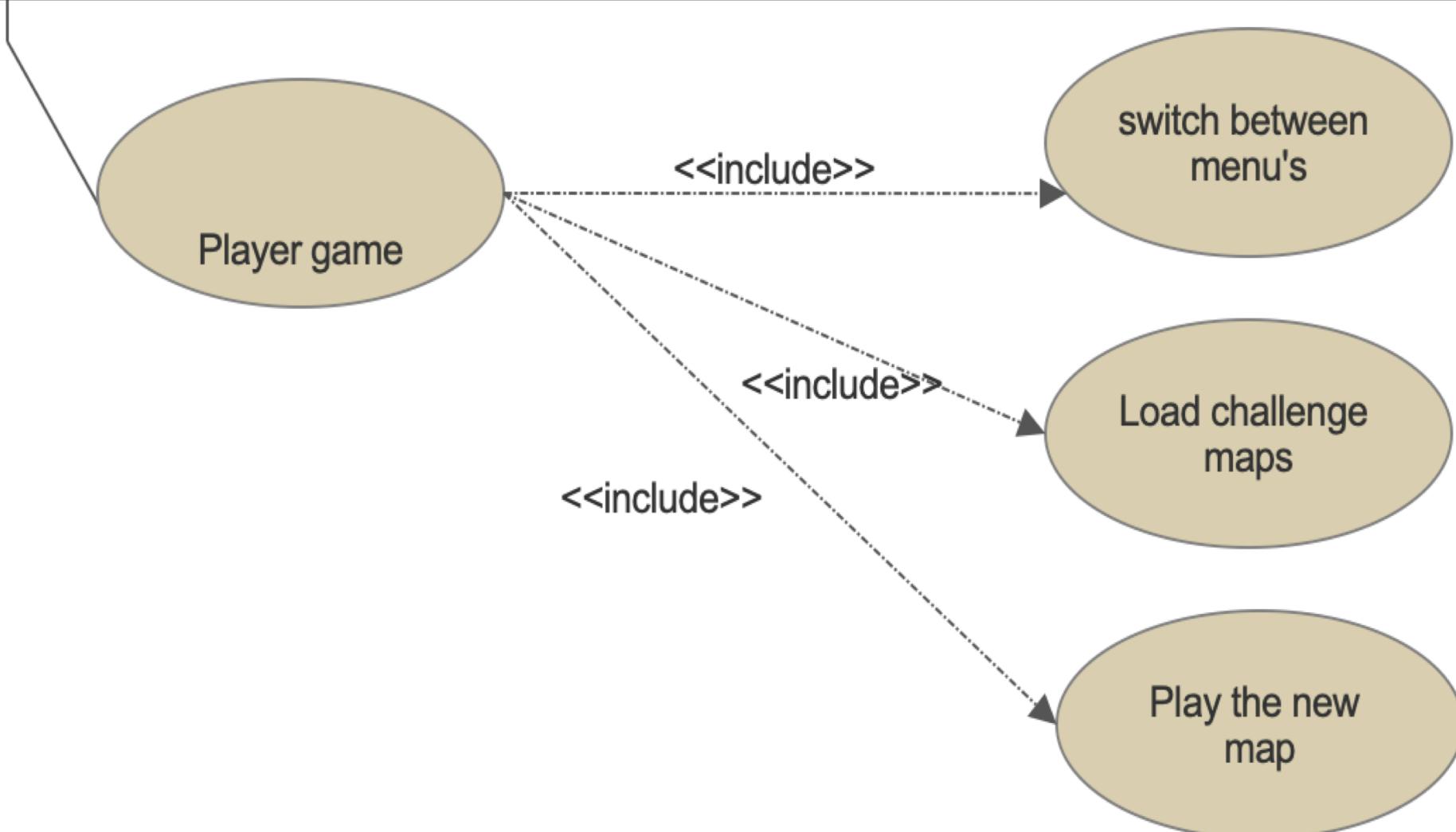
trAIner
The AI Game



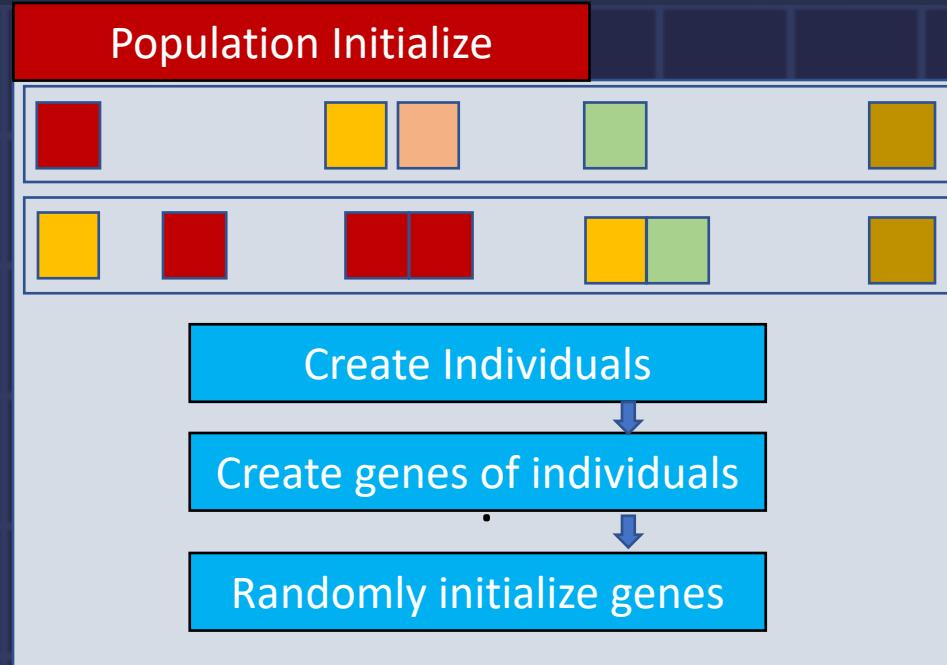
AI GAME



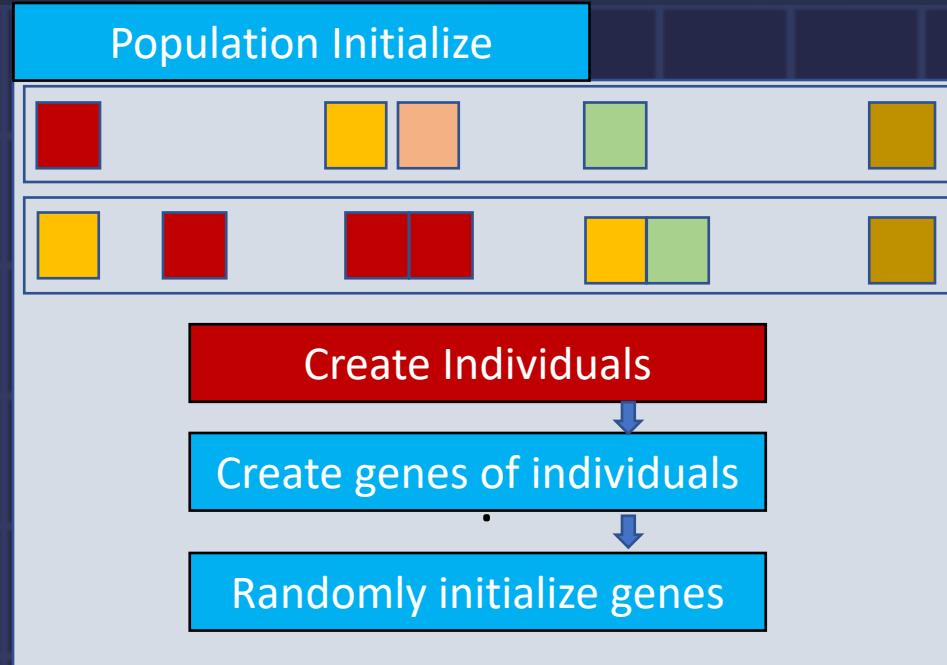
PLAYER GAME



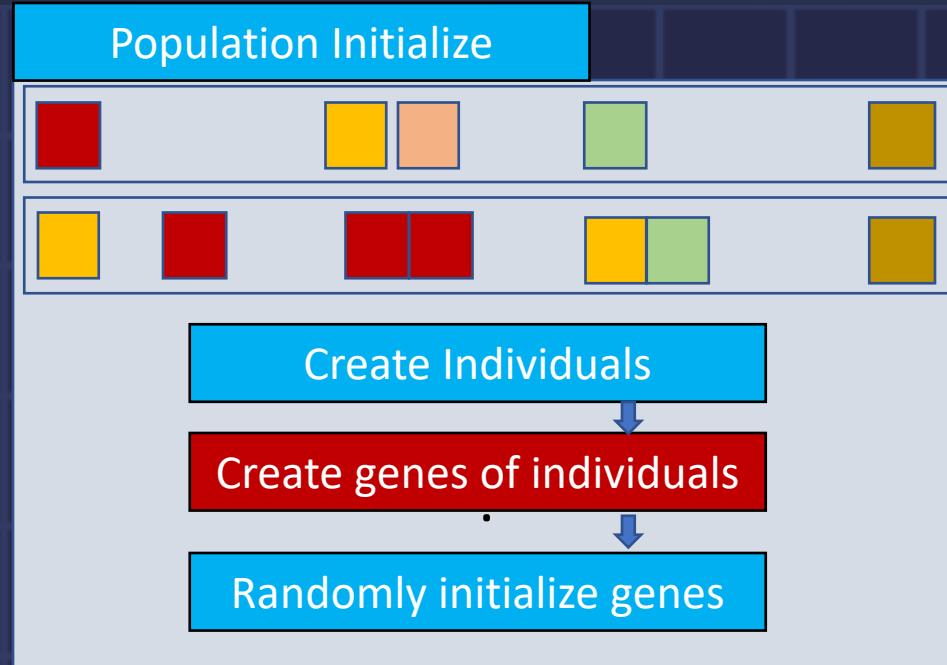
GENETIC ALGORITHM



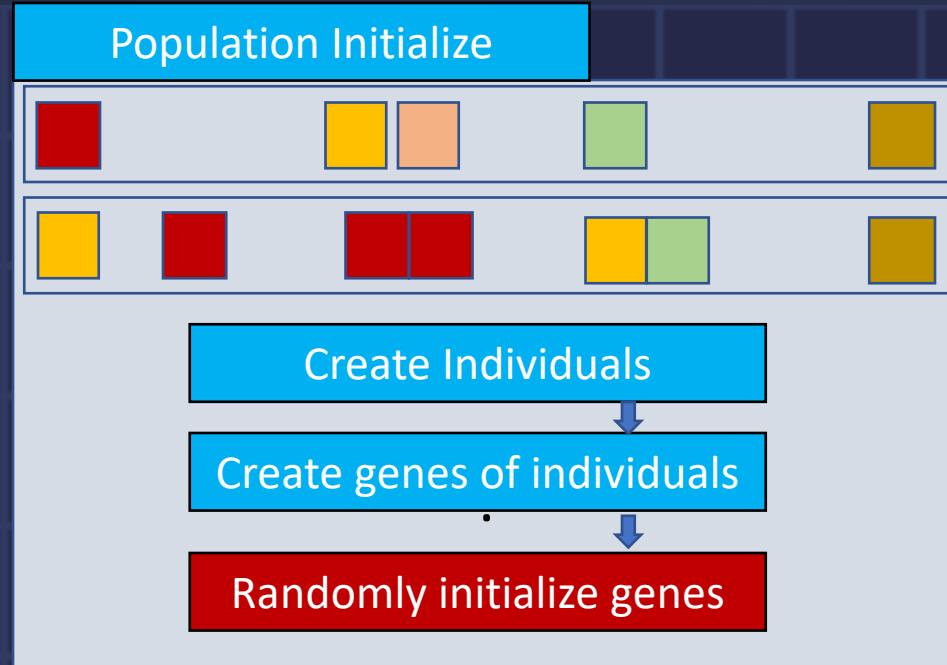
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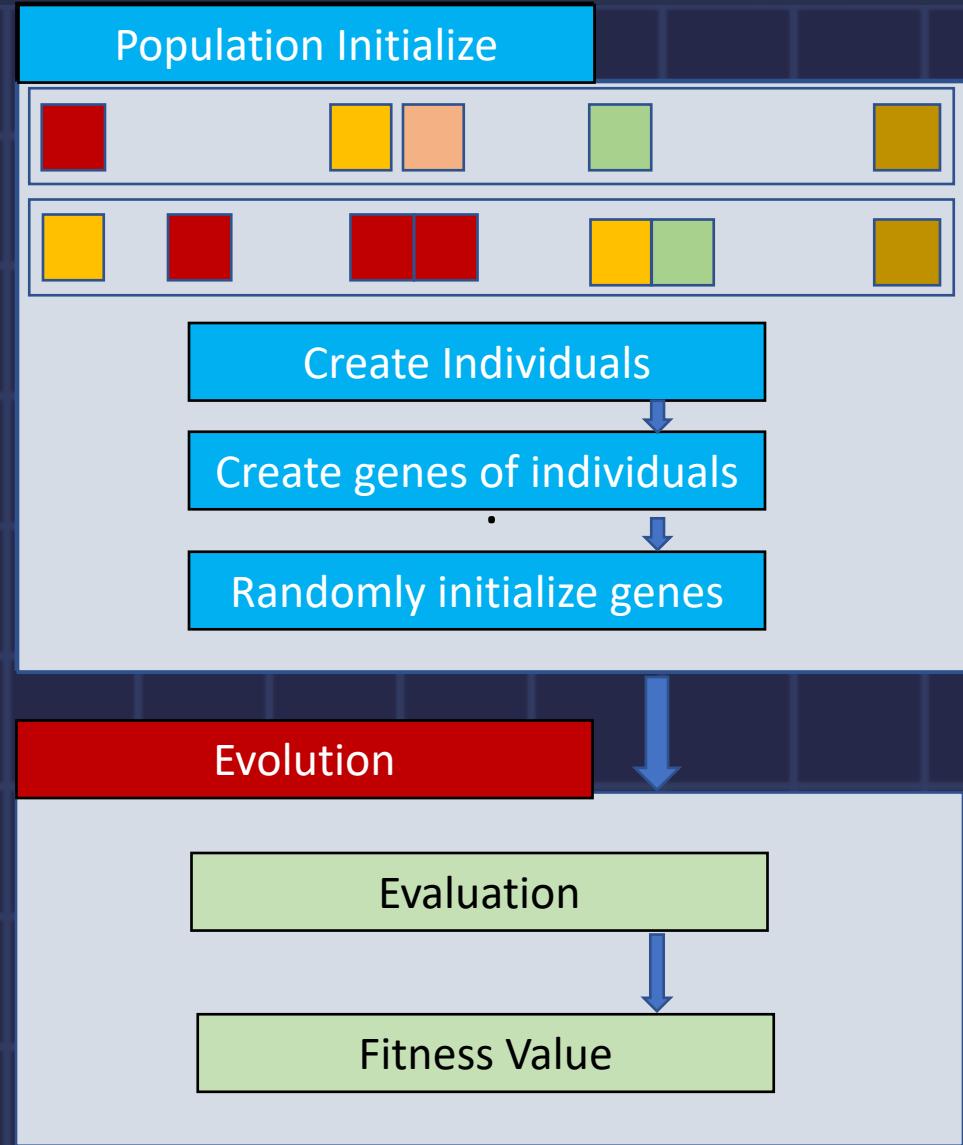
GENETIC ALGORITHM



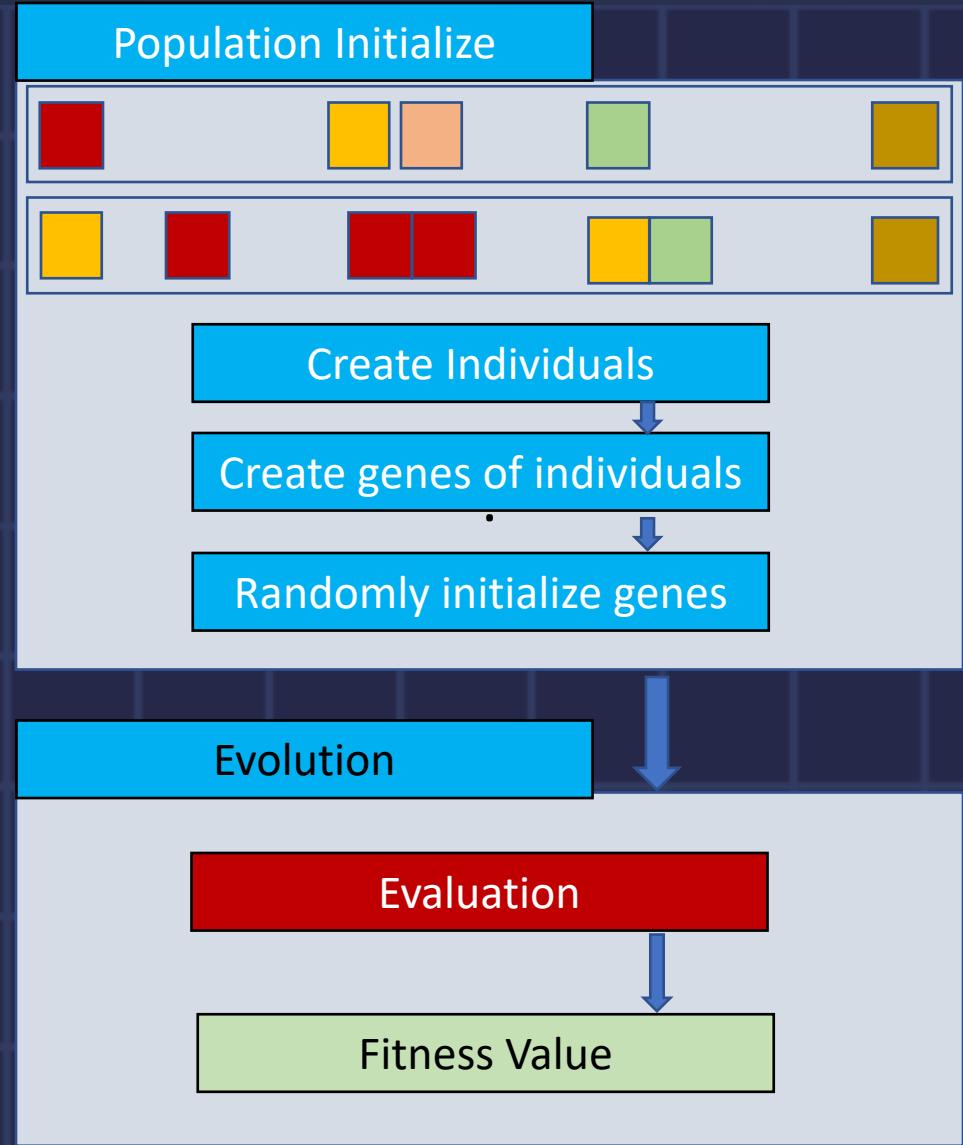
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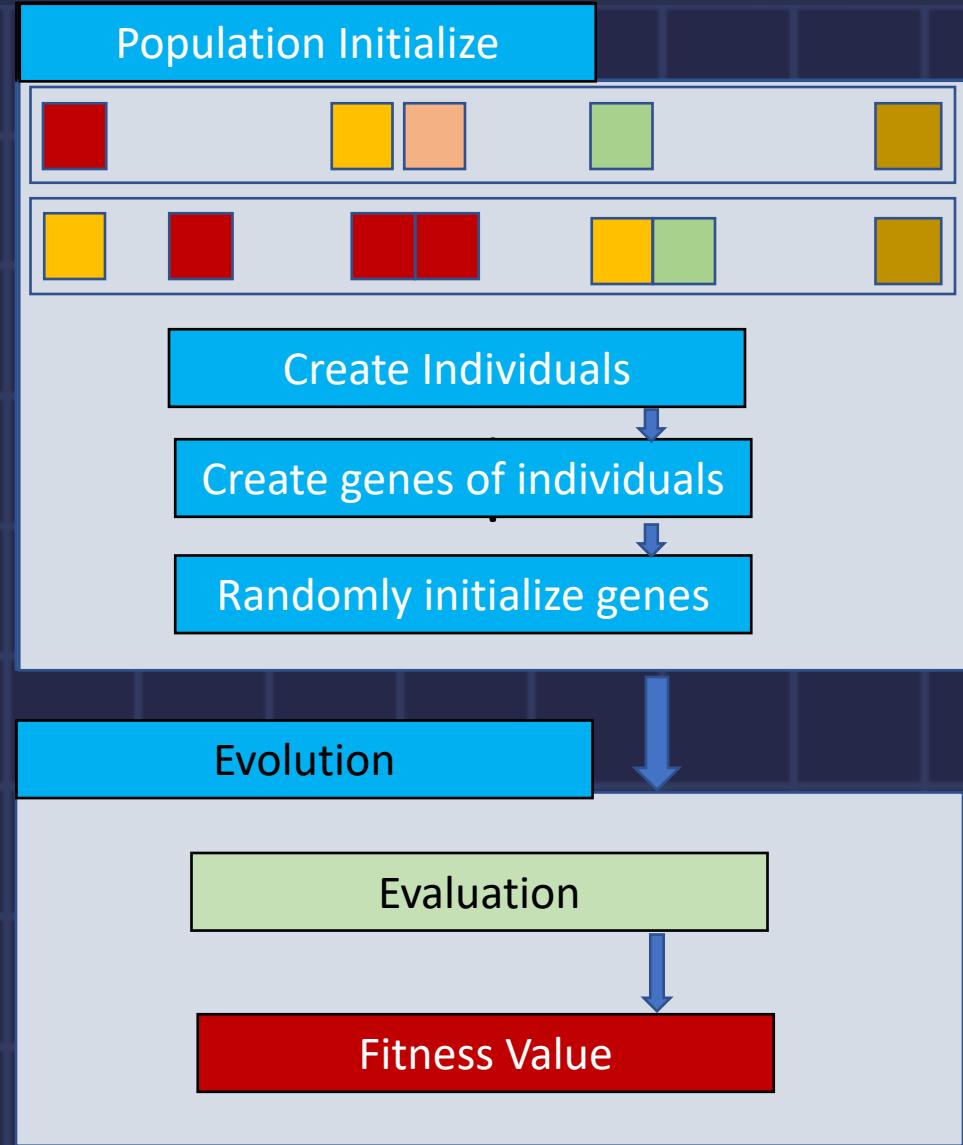
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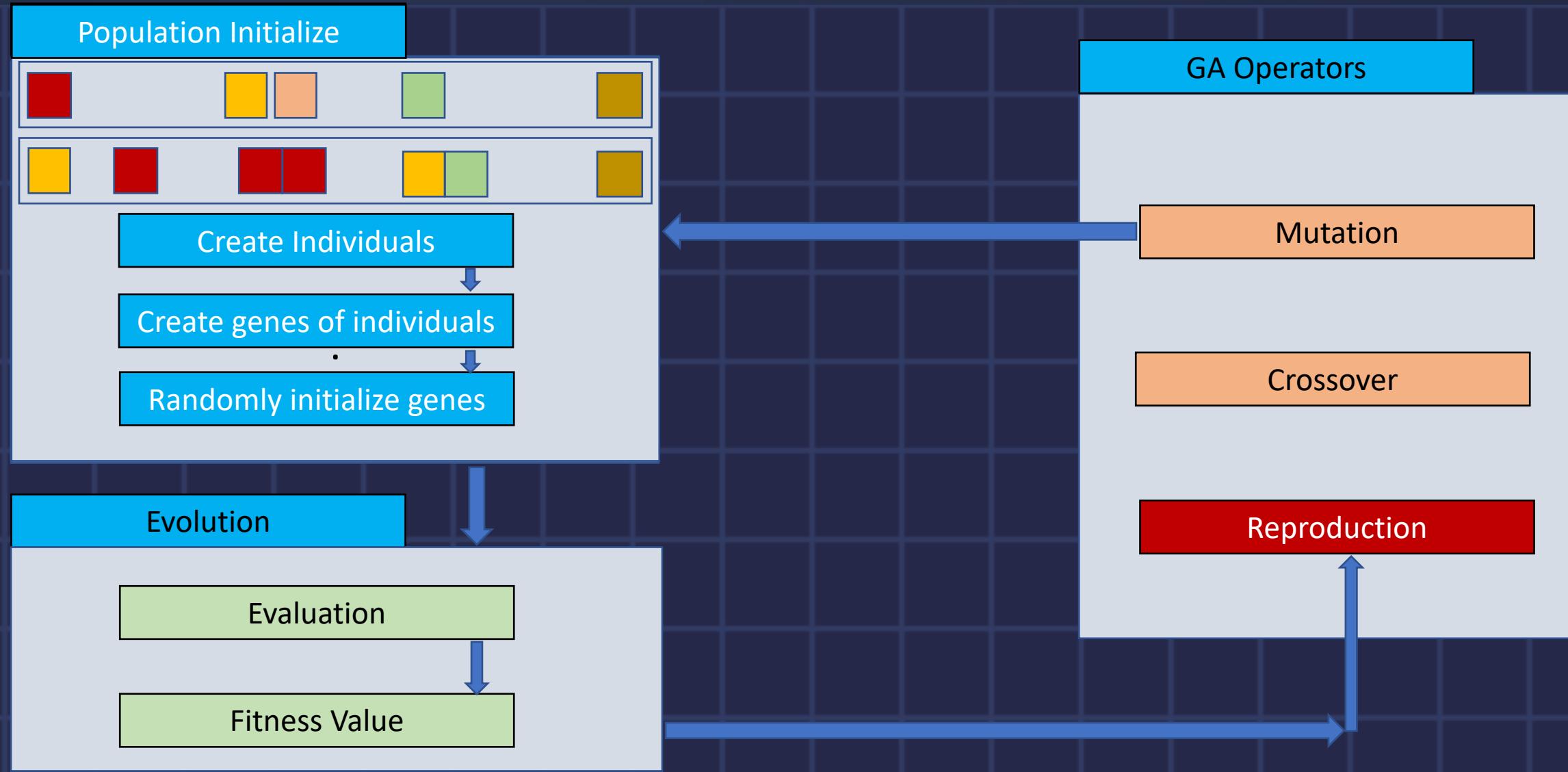
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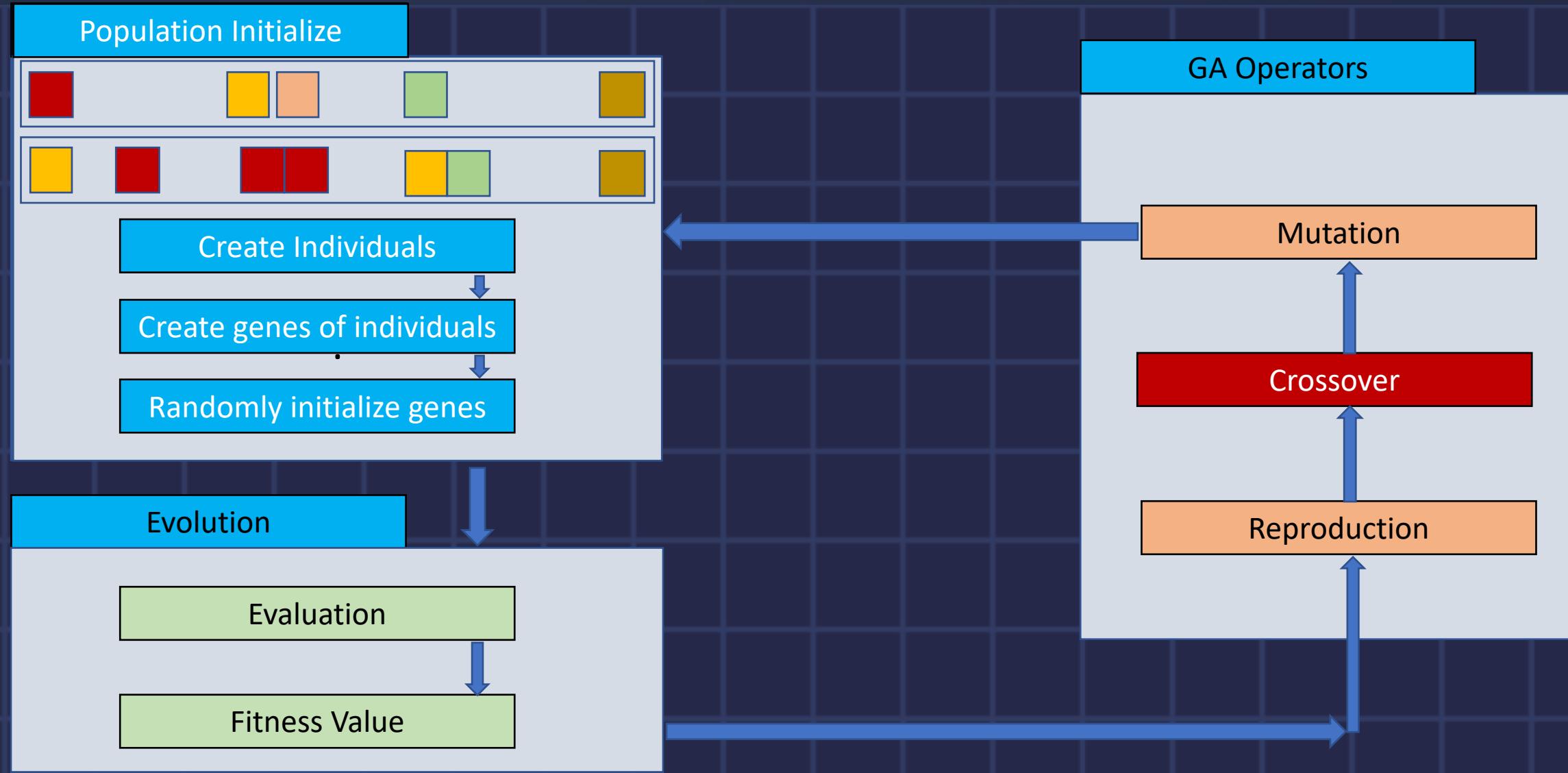
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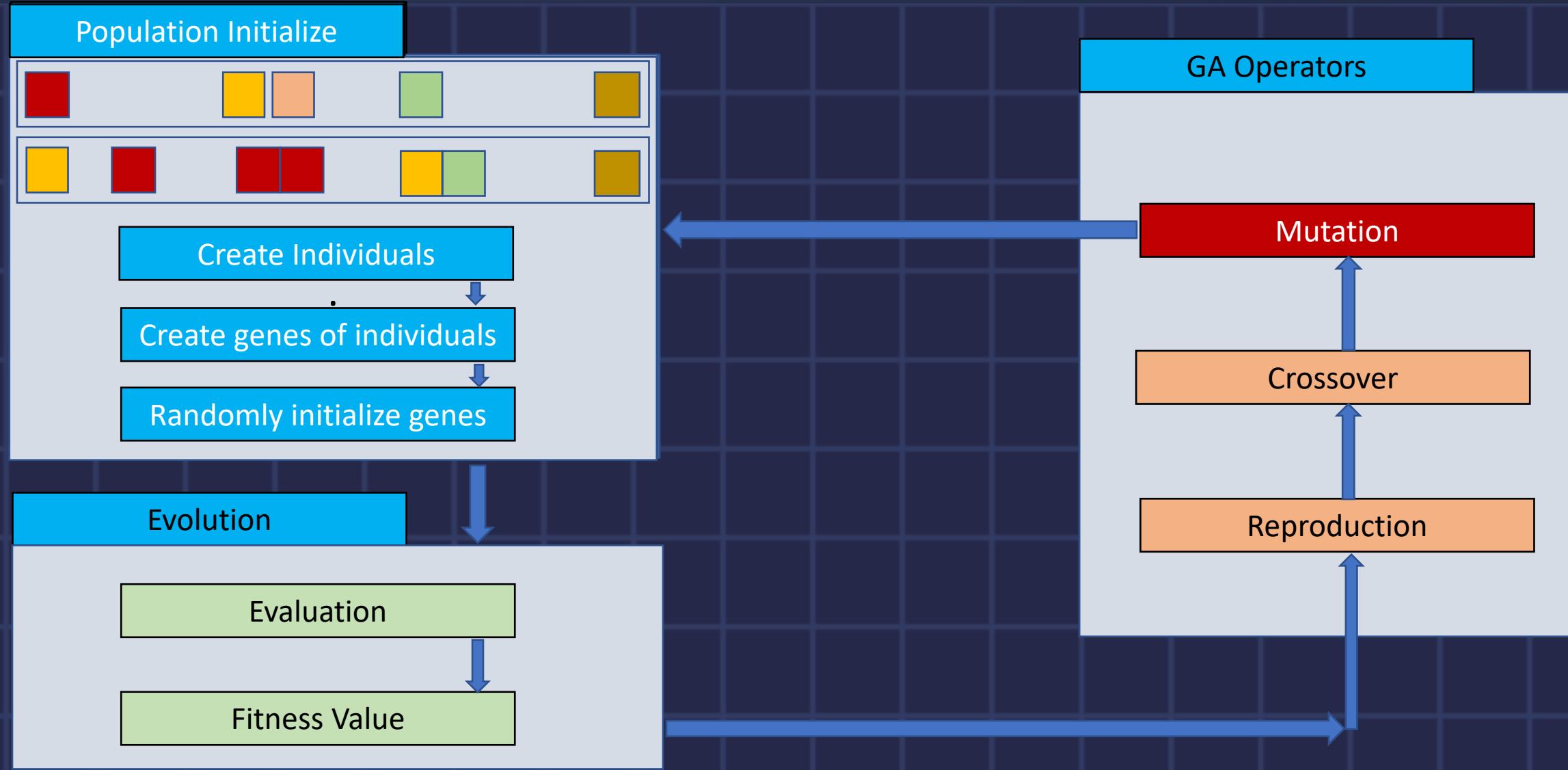
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GENETIC ALGORITHM



GENETIC ALGORITHM

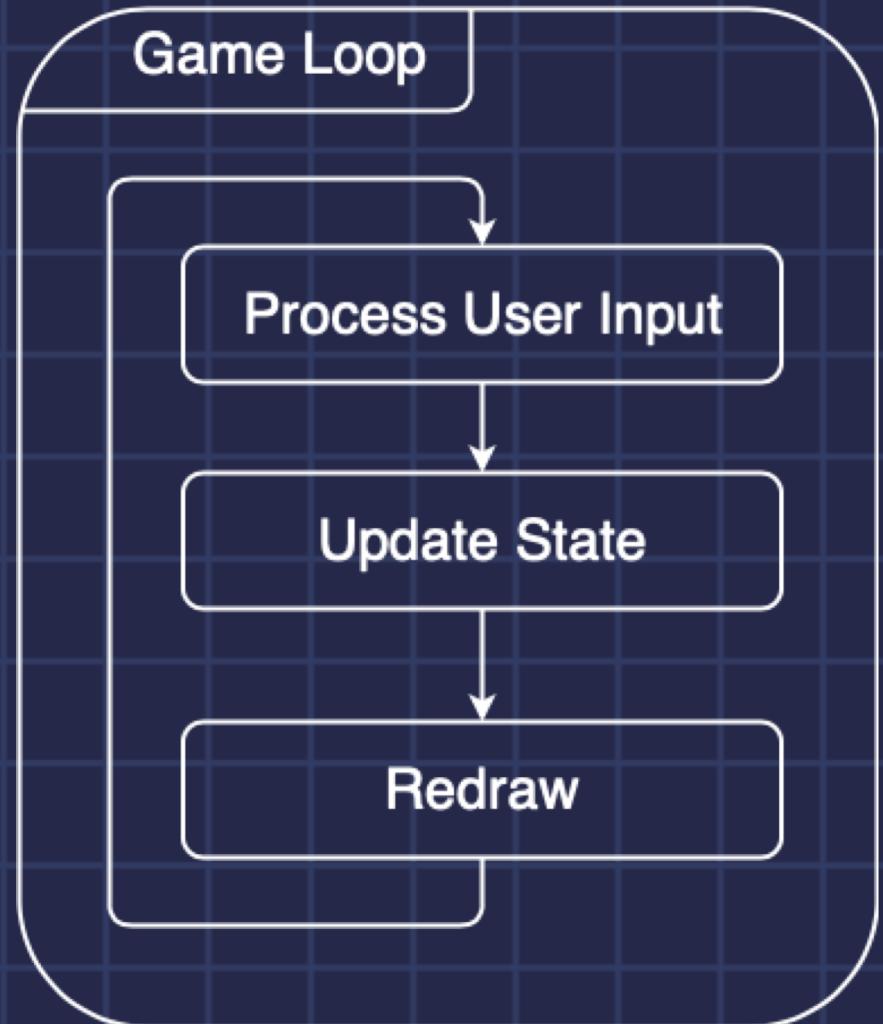
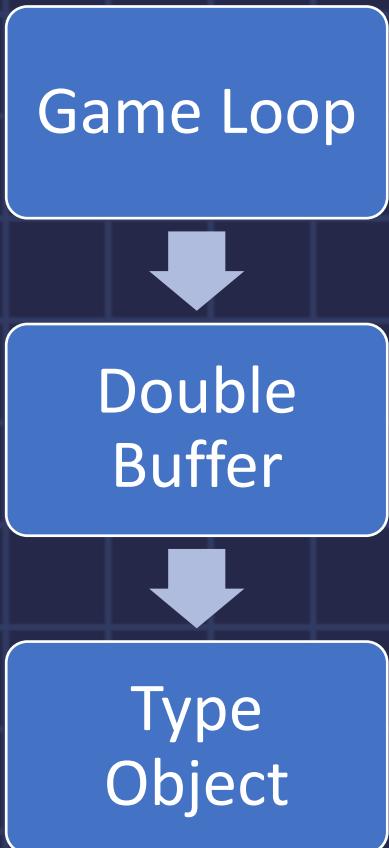


REQUIREMENTS

Technical Constraints	
Budget	750 Hours
Scope	AI based system
Platform Supported	All platforms supporting Java
Schedule	04.10.18 - 24.01.19

Non Functional Constraints	
Portability	Each java capable device can run the game
Usability	User friendly and long term satisfying game
Cost	Minimal installation and setup efforts

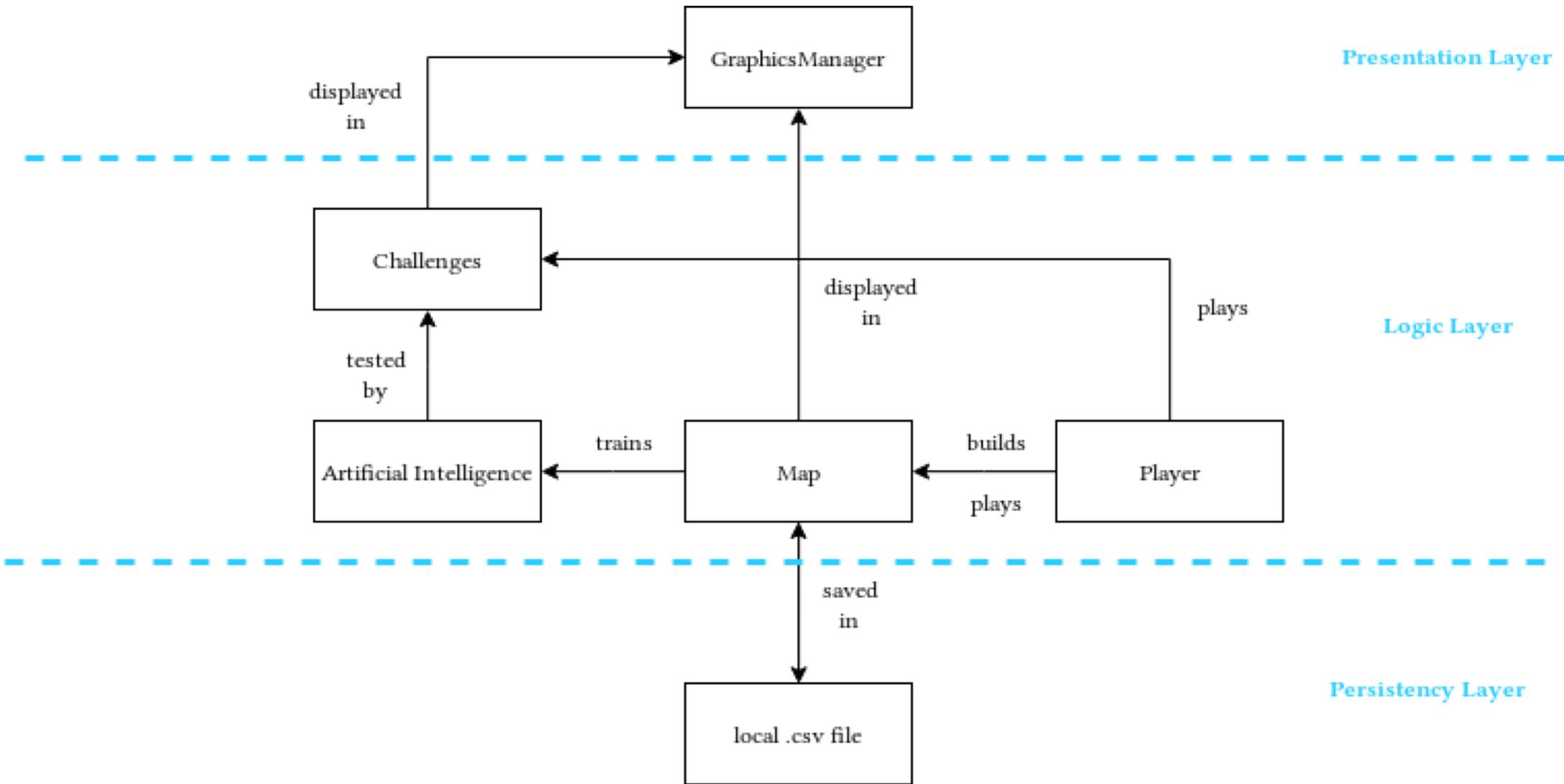
ARCHITECTURAL PATTERNS



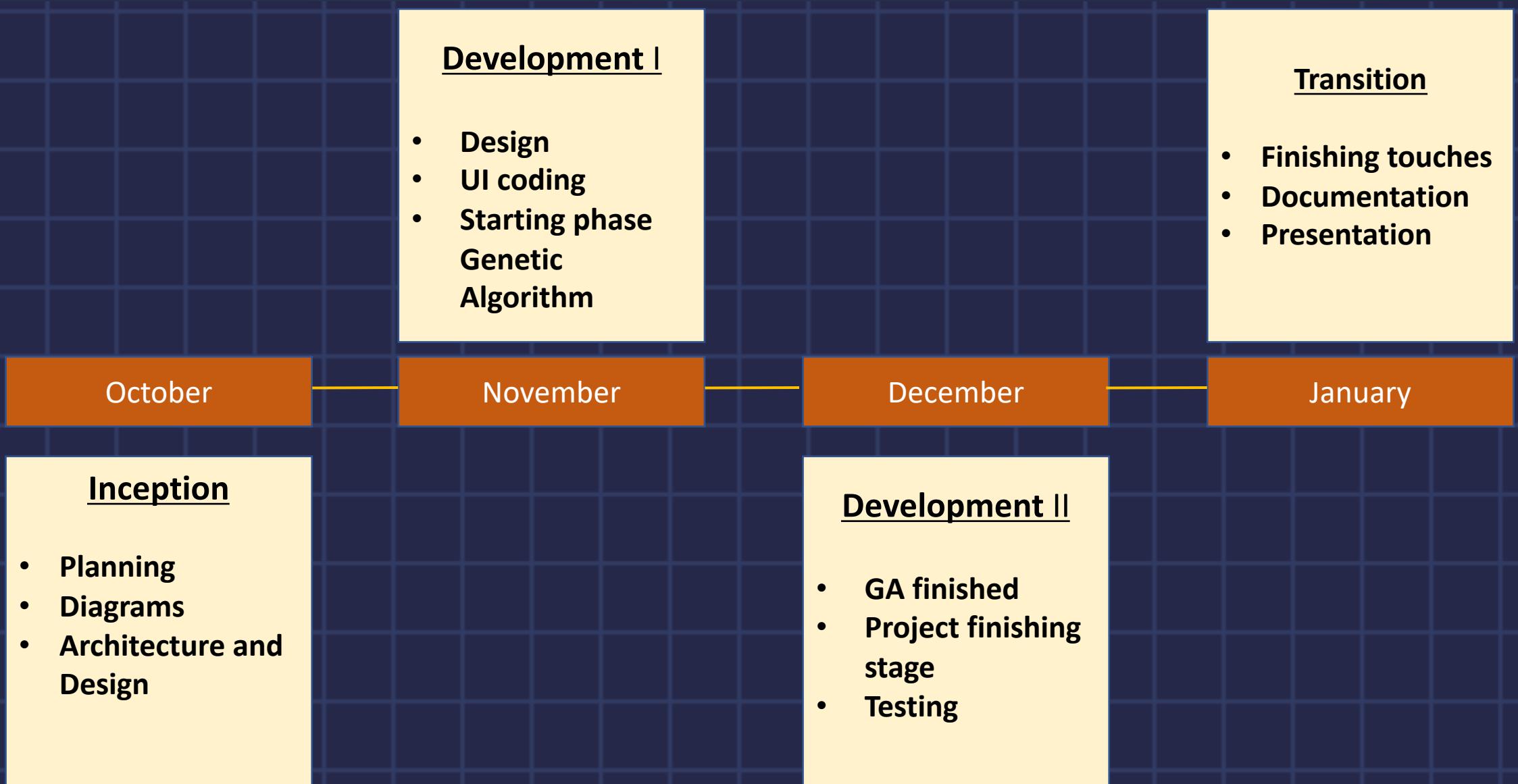
TYPE OBJECTS



DOMAIN MODEL



TIMELINE



LESSONS LEARNT

- Managing project on Github (branching and merging)
- Importance of scrum meetings
- Use of proper diagram formats
- Proper time planning
- Coherent task distribution

FUTURE WORK

- Scoreboard
- Reusing pre-trained AI
- Reinforcement learning

PREVIEW

LIVE DEMO