Project 1 Report

SEARCHING – CS420 ARTIFICIAL INTELLIGENCE

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1. GROUP INFORMATION

No.	Student ID	Name
1	18125129	Nguyễn Trung Hậu
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3	18125106	Nguyễn Thảo Ninh
4	18125030	Phan Lê Minh Triết

% of project completion: 80%

2. PROJECT STRUCTURE

2.1. class TreeNode:

	Name	Usage
Attributes	children: list	node's children
	parent: TreeNode	node's parent
	data	node
Methods	def addChild(self,child):	create a relationship as parent of node child
	def getParent(self):	return node's parent
	def getData(self):	return node
	def takeChildren(self,nodex):	create a relationship as parent of nodes' children

2.2. class Coordinate:

	Name	Usage
Attributes	x	horizontal coordinate
	y	vertical coordinate
Methods	def moveUpLeft(self):	move to northwest
	def moveUpNone(self):	move to north
	def moveUpRight(self):	move to northeast
	def moveNoneRight(self):	move to east
	def moveDownRight(self):	move to southeast
	def moveDownNone(self):	move to south
	def getX(self):	return horizontal coordinate
	def getY(self):	return vertical coordinate
	def setX(self,x):	set horizontal coordinate to x
	def setY(self,y):	set vertical coordinate to y
	def setXY(self,x,y):	set coordinates to x and y
	def isEqual(self,Coor):	check whether coordinate is the current position

2.3. class Seeker(Coordinate):

	Name	Usage
Attributes	rangeVision:	area where hiders can be spotted by seekers

Methods	def appendRange(self,coorRange):	add an unit coordinate to the vision area
	def resetRange(self):	reset Vision range when moving

2.4. class Hider(Coordinate):

	Name	Usage
Attribute	num_of_hiders: static	number of hiders generated

3. PROJECT DEMONSTRATION

3.1. How to run

usage: buildGame.py [-h] [--map MAP] [--hiders HIDERS]

optional arguments:
-h, --help show this help message and exit
--map MAP index of map,
value=[11,12,13,14,21,22,23,24,31,32,33,34,41,42,43,44]
--hiders HIDERS number of Hiders

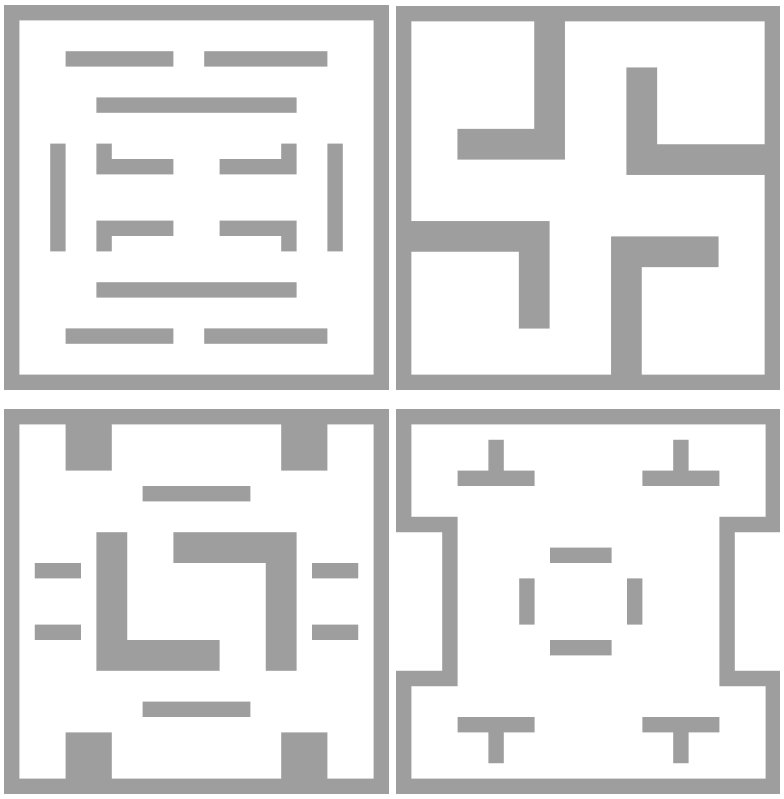
Eg: `py buildGame.py --map 33 --hiders 5` will run map 33 with 5 hiders.

`py buildGame.py` will by default run map 23 with 1 hider.

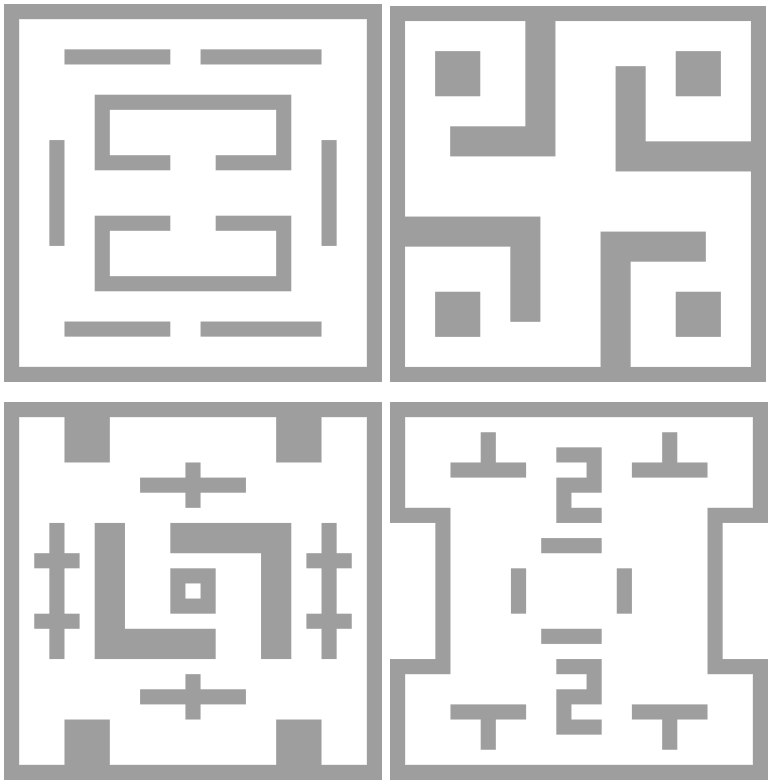
3.2. Map designs

Walls are illustrated using grey, while obstacles are in yellow.

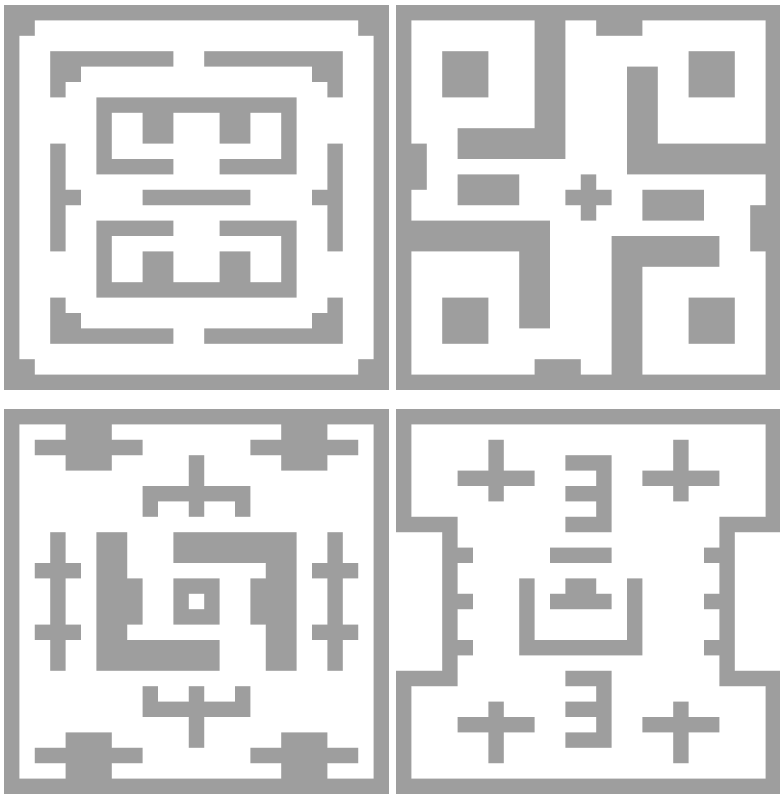
Level 1: Maps are simply designed and easy for hiders to move around



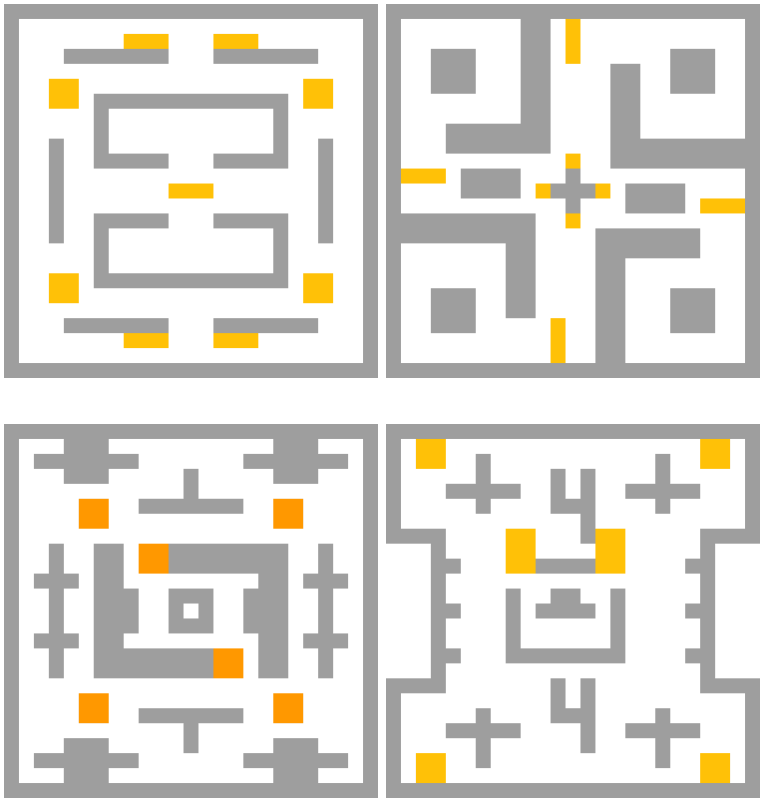
- **Level 2:** Maps are slightly more complex



- **Level 3:** Maps are complex and requires more calculations to find suitable routes



- **Level 4:** Maps are complex and requires more calculations so as to find suitable routes, and there are obstacles that both hiders and seekers can make use of

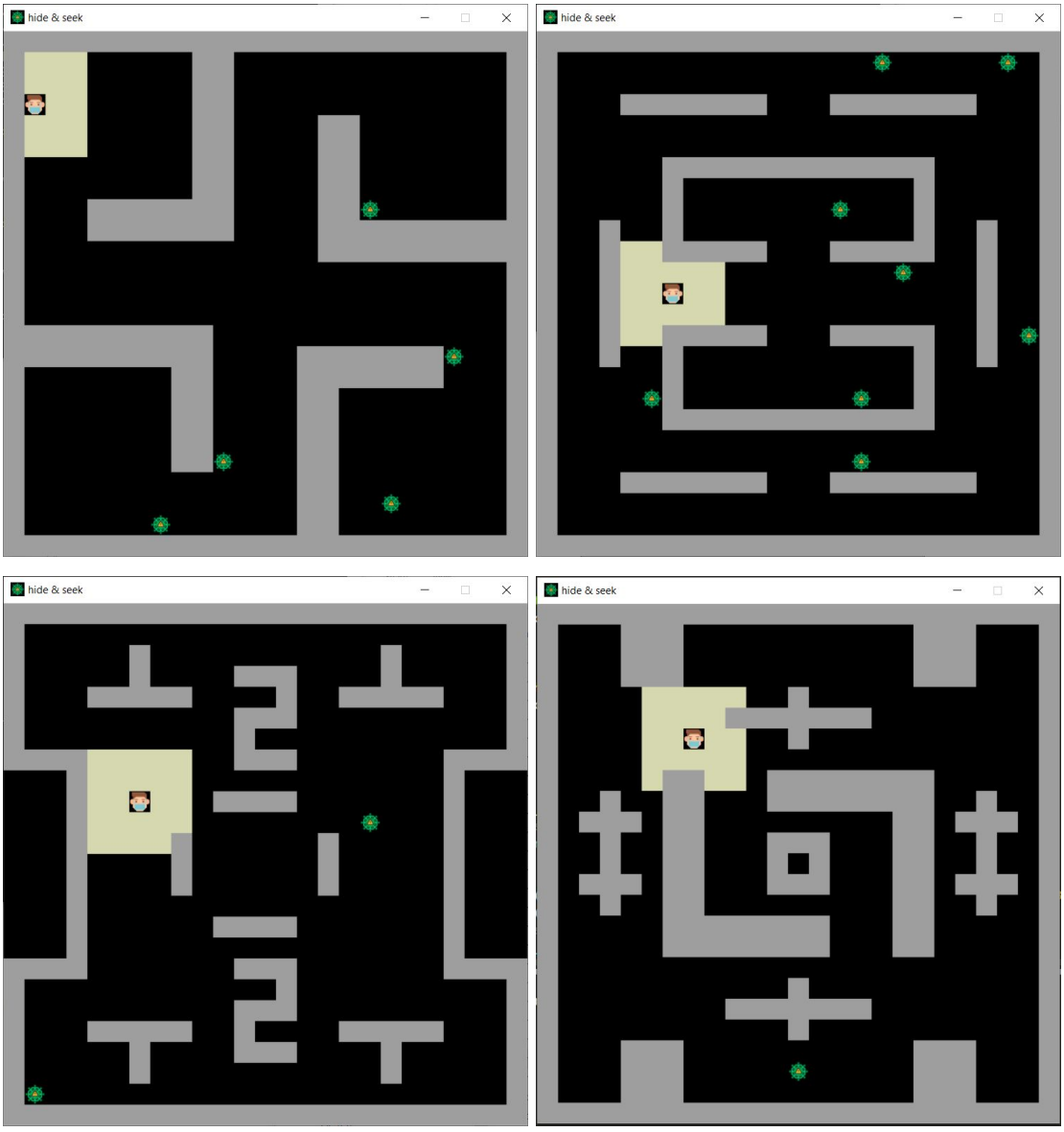


3.3. Game Players

Seeker: 

Hider: 

3.4. Game demo



4. Other

- Programming language:
  - Python: 100%
- Programing environment:
  - Sublime Text
  - Visual Studio Code
- Completion Estimating:
  - Level 01 : 100%
  - Level 02 : 100%
  - Level 03 : 100%
  - Level 04 : 0%
  - Graphic demonstrating : 90%
  - Maps Generating : 100%
  - Report Writing: 100%

REFERENCES