# Zappy AI

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1	Hierarchical Index	1
	1.1 Class Hierarchy	1
2	Class Index	3
	2.1 Class List	3
3	Class Documentation	5
	3.1 Action.Action Class Reference	5
	3.1.1 Detailed Description	5
	3.2 Al.Al Class Reference	6
	3.2.1 Detailed Description	6
	3.2.2 Constructor & Destructor Documentation	6
	3.2.2.1init()	6
	3.2.3 Member Function Documentation	7
	3.2.3.1 run()	7
	3.3 API.API Class Reference	7
	3.3.1 Detailed Description	7
	3.3.2 Constructor & Destructor Documentation	8
	3.3.2.1init()	8
	3.3.3 Member Function Documentation	8
	3.3.3.1 close()	8
	3.3.3.2 connect()	8
	3.3.3.3 initConnection()	9
	3.3.3.4 receiveData()	9
	3.3.3.5 sendData()	9
	3.4 APIException.APIException Class Reference	10
	3.5 ArgsException.ArgsException Class Reference	10
	3.5.1 Detailed Description	10
	3.5.2 Constructor & Destructor Documentation	10
	3.5.2.1init()	10
	3.6 IError.IError Class Reference	10
	3.6.1 Detailed Description	11
	3.6.2 Constructor & Destructor Documentation	11
	3.6.2.1 <u>init</u> ()	11
	3.6.3 Member Function Documentation	11
	3.6.3.1repr()	12
	3.6.3.2str()	12
	3.7 Inventory.Inventory Class Reference	12
	3.7.1 Detailed Description	13
	3.7.2 Constructor & Destructor Documentation	13
	3.7.2.1init()	13
	3.7.3 Member Function Documentation	14
	3.7.3.1eq()	14
	5.7.5.1 <u>-64 (</u> )	14

3.7.3.2 <u>str</u> ()	14
3.7.3.3 addAnObject()	14
3.7.3.4 removeAnObject()	15
3.7.3.5 updateCaseContent()	15
3.7.3.6 updateInventory()	15
3.8 Item.Item Class Reference	15
3.8.1 Detailed Description	16
3.9 Player.Player Class Reference	16
3.9.1 Detailed Description	17
3.9.2 Constructor & Destructor Documentation	18
3.9.2.1init()	18
3.9.3 Member Function Documentation	18
3.9.3.1str()	18
3.9.3.2 broadcast()	19
3.9.3.3 chooseAction()	19
3.9.3.4 cmdInventory()	19
3.9.3.5 connectNbr()	19
3.9.3.6 eject()	19
3.9.3.7 fork()	20
3.9.3.8 handleElevation()	20
3.9.3.9 handleResponse()	20
3.9.3.10 hasSomethingHappened()	20
3.9.3.11 incantation()	21
3.9.3.12 look()	21
3.9.3.13 moveForward()	21
3.9.3.14 none()	21
3.9.3.15 set()	21
3.9.3.16 take()	22
3.9.3.17 turnLeft()	22
3.9.3.18 turnRight()	22
3.9.3.19 updateBroadcastReceived()	22
3.9.3.20 updateEjectionReceived()	23
3.9.3.21 updateInventory()	23
3.9.3.22 updateLevel()	23
3.9.3.23 updateVision()	23
3.10 PlayerException.PlayerDeathException Class Reference	24
3.10.1 Detailed Description	24
3.10.2 Constructor & Destructor Documentation	24
3.10.2.1init()	24
3.11 PlayerException.PlayerException Class Reference	24
3.11.1 Detailed Description	25
3.11.2 Constructor & Destructor Documentation	25

		iii
	3.11.2.1init()	25
Index		27

# **Chapter 1**

# **Hierarchical Index**

# 1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

d.Al	
NPI.API	. 7
xception	
iError.IError	10
nventory.Inventory	
Player.Player	. 16
num	
Action.Action	
Item.Item	15
Error	
APIException.APIException	
ArgsException.ArgsException	
PlayerException.PlayerException	24
PlayerException.PlayerDeathException	24

2 Hierarchical Index

# Chapter 2

# **Class Index**

# 2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

ion.Action	
N	. 6
API	. 7
Exception.APIException	. 10
sException.ArgsException	. 10
or.IError	. 10
entory. Inventory	
EPITECH PROJECT, 2024 Zappy File description: Inventory	. 12
n.ltem	. 15
yer.Player	. 16
yerException.PlayerDeathException	. 24
yerException.PlayerException	. 24

4 Class Index

# **Chapter 3**

# **Class Documentation**

# 3.1 Action.Action Class Reference

Inheritance diagram for Action. Action:

Collaboration diagram for Action. Action:

# **Static Public Attributes**

- str FORWARD = "Forward"
- str RIGHT = "Right"
- str LEFT = "Left"
- str LOOK = "Look"
- str INVENTORY = "Inventory"
- str BROADCAST = "Broadcast"
- str CONNECT\_NBR = "Connect\_nbr"
- str FORK = "Fork"
- str **EJECT** = "Eject"
- str TAKE = "Take"
- str **SET** = "Set"
- str INCANTATION = "Incantation"
- str NONE = "None"

# 3.1.1 Detailed Description

```
Action class A class to list the actions the player can do \,
```

The documentation for this class was generated from the following file:

/home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Enum/Action.py

# 3.2 Al.Al Class Reference

#### **Public Member Functions**

- def \_\_init\_\_ (self, host, port, teamName, isLeader=False)
- def run (self)

#### **Public Attributes**

- api
- player
- teamName

# 3.2.1 Detailed Description

```
AI class
A class to handle the AI of the Zappy project

Attributes:
    api : API
        the API to communicate with the server
    player : Player
        the player
        teamName : str
        the name of the team

------

Methods:
    __init__(host : str, port : int, teamName : str)
        Constructor of the AI class
    run()
        Run the AI
```

# 3.2.2 Constructor & Destructor Documentation

# 3.2.2.1 \_\_init\_\_()

3.3 API.API Class Reference 7

#### 3.2.3 Member Function Documentation

#### 3.2.3.1 run()

The documentation for this class was generated from the following file:

· /home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Al.py

# 3.3 API.API Class Reference

#### **Public Member Functions**

- def \_\_init\_\_ (self, str host, int port)
- · def connect (self)
- def sendData (self, str data, int timeout=None)
- def receiveData (self, int timeout=None)
- def initConnection (self, str teamName)
- def close (self)

#### 3.3.1 Detailed Description

```
API class
A class to communicate with the server
Attributes :
   host : str
        the host of the server
       the port of the server
    inputs : list
       the list of inputs
    outputs : list
       the list of outputs
    sock : socket
        the socket to communicate with the server
    sendData(data : str, timeout : int = None)
        send data to the server
    receiveData(timeout : int = None)
       receive data from the server
    connect(team_name : str)
       connect to the server
    close()
        close the connection
```

# 3.3.2 Constructor & Destructor Documentation

# 3.3.2.1 \_\_init\_\_()

# 3.3.3 Member Function Documentation

# 3.3.3.1 close()

```
def API.API.close ( self \ ) Close the connection with the server
```

#### 3.3.3.2 connect()

```
def API.API.connect ( self\ ) Connect to the server Add the socket to the inputs and outputs lists
```

#### 3.3.3.3 initConnection()

```
def API.API.initConnection (
            str teamName )
Function to do the first exchange with the server
Send the team name to the server
Receive the client number and the map size from the server
Print the client number and the map size
Parameters :
   team_name : str
       the name of the team
Returns :
   client_num : int
       the client number
    x : int
       the x size of the map
    y : int
        the y size of the map
```

#### 3.3.3.4 receiveData()

#### 3.3.3.5 sendData()

The documentation for this class was generated from the following file:

/home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Network/API.py

# 3.4 APIException.APIException Class Reference

Inheritance diagram for APIException. APIException:

# 3.5 ArgsException.ArgsException Class Reference

Inheritance diagram for ArgsException.ArgsException:

Collaboration diagram for ArgsException.ArgsException:

#### **Public Member Functions**

```
    def __init__ (self, message)
```

# 3.5.1 Detailed Description

```
ArgsException class

A class to handle exceptions that can occur in the Args
The ArgsException class inherits from the IError class

Attributes:
    message: str
    the message of the exception
```

#### 3.5.2 Constructor & Destructor Documentation

The documentation for this class was generated from the following file:

 $\bullet \ \ / home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Errors/ArgsException.py$ 

# 3.6 IError Class Reference

Inheritance diagram for IError.IError:

Collaboration diagram for IError.IError:

# **Public Member Functions**

```
def __init__ (self, message)
def __str__ (self)
def __repr__ (self)
```

# **Public Attributes**

message

# 3.6.1 Detailed Description

```
IError class
A class to handle errors that can occur in the project
Attributes :
    message : str
        the message of the error
------
Methods :
    __str__()
        return the message of the error
__repr__()
        return the message of the error
```

#### 3.6.2 Constructor & Destructor Documentation

```
3.6.2.1 init ()
```

#### 3.6.3 Member Function Documentation

# 

Return the message of the error

self )

The documentation for this class was generated from the following file:

/home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Errors/IError.py

# 3.7 Inventory.Inventory Class Reference

EPITECH PROJECT, 2024 Zappy File description: Inventory.

#### **Public Member Functions**

- def \_\_init\_\_ (self, food=10, linemate=0, deraumere=0, sibur=0, mendiane=0, phiras=0, thystame=0, player=0)
- def \_\_str\_\_ (self)
- def \_\_eq\_\_ (self, inventory)
- def updateInventory (self, str data)
- def updateCaseContent (self, list data)
- def addAnObject (self, str ressource)
- def removeAnObject (self, str ressource)

# **Public Attributes**

- food
- linemate
- · deraumere
- sibur
- mendiane
- phiras
- thystame
- player

# 3.7.1 Detailed Description

EPITECH PROJECT, 2024 Zappy File description: Inventory.

```
Inventory class
A class to handle the inventory of the player
Attributes :
    food : int
       the number of food
    linemate : int
       the number of linemate
    deraumere : int
       the number of deraumere
    sibur : int
       the number of sibur
    mendiane : int
       the number of mendiane
    phiras : int
       the number of phiras
    thystame : int
       the number of thystame
    player : int
       the number of players
_____
Methods :
   ___init___()
       Constructor of the Inventory class
    __str__()
        Print the inventory
    updateInventory(data)
        Update the inventory with the data from the inventory command
    updateCaseContent(data)
       Update the case content with the data from the vision command
    addAnObject(ressource)
       Add an object to the inventory
    removeAnObject (ressource)
        Remove an object from the inventory
```

#### 3.7.2 Constructor & Destructor Documentation

# 3.7.2.1 \_\_init\_\_()

```
def Inventory.Inventory.__init__ (
    self,
    food = 10,
    linemate = 0,
    deraumere = 0,
    sibur = 0,
    mendiane = 0,
    phiras = 0,
    thystame = 0,
    player = 0 )
```

Constructor of the Inventory class

# 3.7.3 Member Function Documentation

```
3.7.3.1 __eq__()
def Inventory.Inventory.__eq__ (
             self,
             inventory )
Compare two inventories
Parameters :
   inventory : Inventory
       the inventory to compare with
Returns :
   bool
       True if the inventories are the same, False otherwise
3.7.3.2 __str__()
def Inventory.Inventory.__str__ (
             self )
Print the inventory
3.7.3.3 addAnObject()
def Inventory.Inventory.addAnObject (
             self,
            str ressource )
```

Add an object to the inventory

the ressource to add

ressource : str

Parameters :

#### 3.7.3.4 removeAnObject()

#### 3.7.3.5 updateCaseContent()

# 3.7.3.6 updateInventory()

The documentation for this class was generated from the following file:

• /home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Player/Inventory.py

# 3.8 Item.Item Class Reference

Inheritance diagram for Item.Item:

Collaboration diagram for Item.Item:

#### **Static Public Attributes**

- str **FOOD** = "food"
- str LINEMATE = "linemate"
- str **DERAUMERE** = "deraumere"
- str SIBUR = "sibur"
- str **MENDIANE** = "mendiane"
- str PHIRAS = "phiras"
- str THYSTAME = "thystame"

# 3.8.1 Detailed Description

```
Item class
A class to list the items in the game
```

The documentation for this class was generated from the following file:

/home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Enum/Item.py

# 3.9 Player.Player Class Reference

#### **Public Member Functions**

- def \_\_init\_\_ (self, bool isLeader)
- def \_\_str\_\_ (self)
- def moveForward (self)
- def turnRight (self)
- def turnLeft (self)
- def look (self)
- def cmdInventory (self)
- def broadcast (self, str message="Hello")
- def connectNbr (self)
- def fork (self)
- def eject (self)
- def take (self, str resource="food")
- def set (self, str resource="food")
- def incantation (self)
- def none (self)
- def updateVision (self, str vision)
- def updateInventory (self, str inventory)
- def updateBroadcastReceived (self, str message)
- def updateEjectionReceived (self, str message)
- def updateLevel (self, int level)
- def handleElevation (self, str response)
- def hasSomethingHappened (self, str response)
- def handleResponse (self, str response)
- def chooseAction (self)

#### **Public Attributes**

- · inventory
- level
- currentAction
- currentCommand
- · callback
- vision
- broadcastReceived
- · ejectionReceived
- isLeader
- unusedSlots
- currentlyElevating

# 3.9.1 Detailed Description

```
Player class
A class to handle the player
{\tt Attributes} \ :
    inventory : Inventory
       the inventory of the player
    level : int
       the level of the player
    currentAction : Action
       the current action of the player
    currentCommand : str
       the current command of the player
    callback : function
        the callback function
    vision : list
       the vision of the player
    broadcastReceived : list
        the broadcast received by the player
    ejectionReceived : list
       the ejection received by the player
    isLeader : bool
       if the player is the leader
    unusedSlots : int
       the unused slots
    currentlyElevating : bool
        if the player is currently elevating
Methods :
    __init__(isLeader : bool)
       Constructor of the Player class
    __str__()
       Print the player
    moveForward()
       Move the player forward
    turnRight()
       Turn the player right
    turnLeft()
        Turn the player left
    look()
        Look around the player
    cmdInventory()
       Get the inventory of the player
    broadcast(message : str = "Hello")
       Broadcast a message
    connectNbr()
        Connect to the number of players
    fork()
```

Fork the player

```
eject()
   Eject the player
take(resource : str = "food")
    Take a resource
set(resource : str = "food")
   Set a resource
incantation()
   Start the incantation
none()
   Do nothing
updateVision(vision: str)
   Update the vision of the player
updateInventory(inventory: str)
   Update the inventory of the player
updateBroadcastReceived(message : str)
   Update the broadcast received by the player
updateEjectionReceived(message : str)
   Update the ejection received by the player
updateLevel(level : int)
   Update the level of the player
handleElevation(response : str)
   Handle the elevation
hasSomethingHappened(response : str)
    Check if something happened
handleResponse(response: str)
   Handle the response
chooseAction()
   Choose the action of the player
```

#### 3.9.2 Constructor & Destructor Documentation

```
3.9.2.1 __init__()
```

#### 3.9.3 Member Function Documentation

```
3.9.3.1 __str__()
```

# 3.9.3.2 broadcast()

#### 3.9.3.3 chooseAction()

```
def Player.Player.chooseAction ( self \ ) Choose the action of the player TODO: Implement the logic to choose the action of the player
```

#### 3.9.3.4 cmdInventory()

```
def Player.Player.cmdInventory ( self \ ) Set the current action to inventory
```

# 3.9.3.5 connectNbr()

```
def Player.Player.connectNbr ( self \ ) Set the current action to connect_nbr
```

#### 3.9.3.6 eject()

```
def Player.Player.eject ( self \ ) Set the current action to eject
```

#### 3.9.3.7 fork()

```
def Player.Player.fork ( self \ ) Set the current action to fork
```

#### 3.9.3.8 handleElevation()

#### 3.9.3.9 handleResponse()

#### 3.9.3.10 hasSomethingHappened()

# 3.9.3.11 incantation()

```
def Player.Player.incantation ( self \ ) \\ Set the current action to incantation
```

# 3.9.3.12 look()

```
def Player.Player.look ( self \ ) \\ Set the current action to look
```

# 3.9.3.13 moveForward()

```
def Player.Player.moveForward ( self \ ) Set the current action to forward
```

# 3.9.3.14 none()

```
\mbox{def Player.Player.none} ( \mbox{\it self }) Set the current action to none
```

#### 3.9.3.15 set()

# 3.9.3.16 take()

# 3.9.3.17 turnLeft()

```
def Player.Player.turnLeft ( self \ ) Set the current action to left
```

#### 3.9.3.18 turnRight()

```
def Player.Player.turnRight ( self \ ) Set the current action to right
```

# 3.9.3.19 updateBroadcastReceived()

#### 3.9.3.20 updateEjectionReceived()

#### 3.9.3.21 updateInventory()

#### 3.9.3.22 updateLevel()

#### 3.9.3.23 updateVision()

The documentation for this class was generated from the following file:

• /home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Player/Player.py

# 3.10 PlayerException.PlayerDeathException Class Reference

Inheritance diagram for PlayerException.PlayerDeathException:

Collaboration diagram for PlayerException.PlayerDeathException:

#### **Public Member Functions**

```
• def __init__ (self, message)
```

```
• def __init__ (self, message)
```

#### 3.10.1 Detailed Description

```
PlayerDeathException class

A class to handle the death of the player

The PlayerDeathException class inherits from the PlayerException class

Attributes:

message: str
the message of the exception
```

#### 3.10.2 Constructor & Destructor Documentation

Reimplemented from PlayerException.PlayerException.

The documentation for this class was generated from the following file:

• /home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Player/PlayerException.py

# 3.11 PlayerException.PlayerException Class Reference

Inheritance diagram for PlayerException.PlayerException:

Collaboration diagram for PlayerException.PlayerException:

# **Public Member Functions**

```
• def __init__ (self, message)
```

# 3.11.1 Detailed Description

```
PlayerException class

A class to handle exceptions that can occur in the Player
The PlayerException class inherits from the IError class

Attributes:
    message: str
    the message of the exception
```

#### 3.11.2 Constructor & Destructor Documentation

Reimplemented in PlayerException.PlayerDeathException.

The documentation for this class was generated from the following file:

• /home/tjerome-rocher/Desktop/Tek2/Zappy/ai/src/Player/PlayerException.py

# Index

eq	Player.Player, 19
Inventory.Inventory, 14	
init	fork
Al.Al, 6	Player.Player, 19
API.API, 8	
ArgsException.ArgsException, 10	handleElevation
IError.IError, 11	Player.Player, 20
Inventory.Inventory, 13	handleResponse
Player.Player, 18	Player.Player, 20
PlayerException.PlayerDeathException, 24	hasSomethingHappened
PlayerException.PlayerException, 25	Player.Player, 20
repr	IError.IError, 10
IError.IError, 11	init, 11
str	repr, 11
IError.IError, 12	repr, 11
Inventory. Inventory, 14	incantation
Player.Player, 18	Player.Player, 20
	initConnection
Action.Action, 5	API.API, 8
addAnObject	Inventory.Inventory, 12
Inventory.Inventory, 14	eq, 14
Al.Al, 6	eq, 14 init, 13
init, 6	str , 14
run, 7	addAnObject, 14
API.API, 7	removeAnObject, 14
init, 8	updateCaseContent, 15
close, 8	•
connect, 8	updateInventory, 15
initConnection, 8	Item.Item, 15
receiveData, 9	look
sendData, 9	Player.Player, 21
APIException.APIException, 10	rayon ayon, 21
ArgsException.ArgsException, 10	moveForward
init, 10	Player.Player, 21
	- <b>.,</b> ,
broadcast	none
Player.Player, 18	Player.Player, 21
abagaa Astian	
chooseAction	Player.Player, 16
Player.Player, 19	init, 18
Close	str, 18
API.API, 8	broadcast, 18
cmdInventory	chooseAction, 19
Player, Player, 19	cmdInventory, 19
connect	connectNbr, 19
API.API, 8	eject, 19
connectNbr	fork, 19
Player.Player, 19	handleElevation, 20
eject	handleResponse, 20
0,001	hasSomethingHappened, 20

28 INDEX

```
incantation, 20
     look, 21
     moveForward, 21
     none, 21
     set, 21
     take, 21
     turnLeft, 22
     turnRight, 22
     updateBroadcastReceived, 22
     updateEjectionReceived, 22
     updateInventory, 23
     updateLevel, 23
     updateVision, 23
PlayerException.PlayerDeathException, 24
      _init___, 24
PlayerException.PlayerException, 24
     __init__, 25
receiveData
     API.API, 9
removeAnObject
     Inventory. Inventory, 14
run
     Al.Al, 7
sendData
     API.API, 9
set
     Player.Player, 21
take
     Player.Player, 21
turnLeft
     Player.Player, 22
turnRight
     Player.Player, 22
updateBroadcastReceived
     Player.Player, 22
updateCaseContent
     Inventory. Inventory, 15
update Ejection Received \\
     Player.Player, 22
updateInventory
     Inventory.Inventory, 15
     Player.Player, 23
updateLevel
     Player.Player, 23
updateVision
     Player.Player, 23
```