

Space Encoders

Projet de Bachelor

Patrick Sardinha

Enjeux du projet



Faire apprendre des mécanismes liés à l'informatique



Création d'un jeu éducatif



Utilisation de différentes plateformes

Concepts



Serious Game

Le but premier du jeu n'est pas de divertir mais d'enseigner un savoir



Game-based learning

Utilisation de jeu vidéo dans le but de faire apprendre

Idée du jeu et inspirations



Jeu totalement collaboratif



Utilisation d'un jeu déjà existant



Le Ciel Interdit

Buts du jeu



Faire décoller une fusée



Construire des algorithmes afin de remplir les objectifs



Faire attention à la syntaxe et la sémantique



Faire face à des événements négatifs

Tuiles et actions



Les tuiles du jeu



Différentes actions

Actions



Piocher une tuile



Se déplacer



Poser une tuile



Retirer une tuile

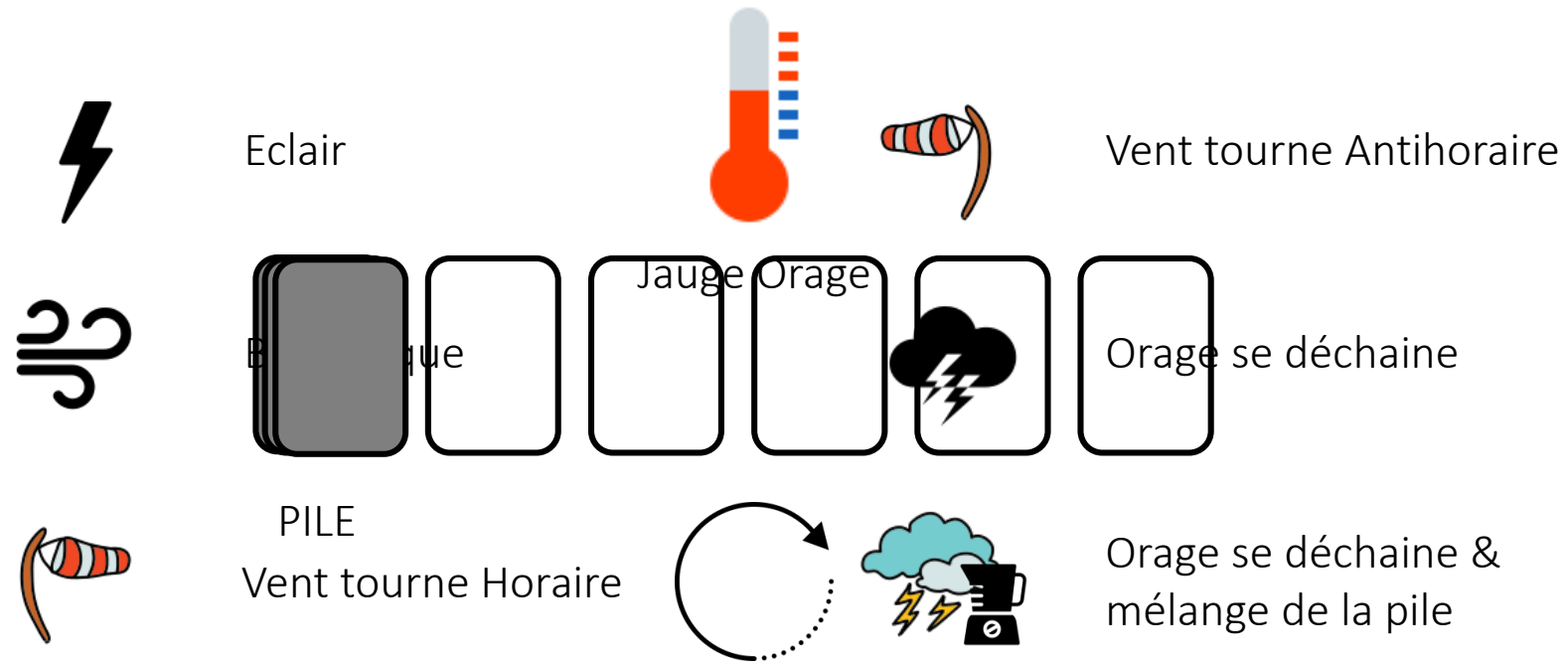


Echanger une tuile



Passer son tour

Cartes Orage



Chaque fin de tour de jeu complet

Evolutions du jeu



Point de vie globale



Modifications pour réduire le temps de jeu



Paramètres du jeu

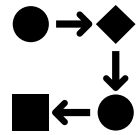


Variantes pour les algorithmes



Moment d'exécution des cartes Orage

Un Serious Game



Algorithmes



Travail d'équipe



Planification

Une autre plateforme



Jeu vidéo



Game-based learning

Organisation du jeu



Application en ligne de commande



Utilisateurs doivent faire des choix



Swift

Entrée du jeu

WELCOME TO SPACE ENCODERS

ENTER THE NUMBER OF PLAYER (2-4): 3

Name of player 1: Jean

Name of player 2: Pierre

Name of player 3: Michel

Présentation des actions et des cartes

The effect of action are the followings:

- [Draw a tile] : choose a tile from the draw stack
- [Move on the map] : move on tiles
- [Explore the map] : place a tile on a case adjacent to its position
- [Remove a tile] : remove a tile on a case adjacent to its position
- [Swap a tile] : swap a tile between 2 players
- [Skip turn] : simply skip your turn

The effect of storm cards are the followings:

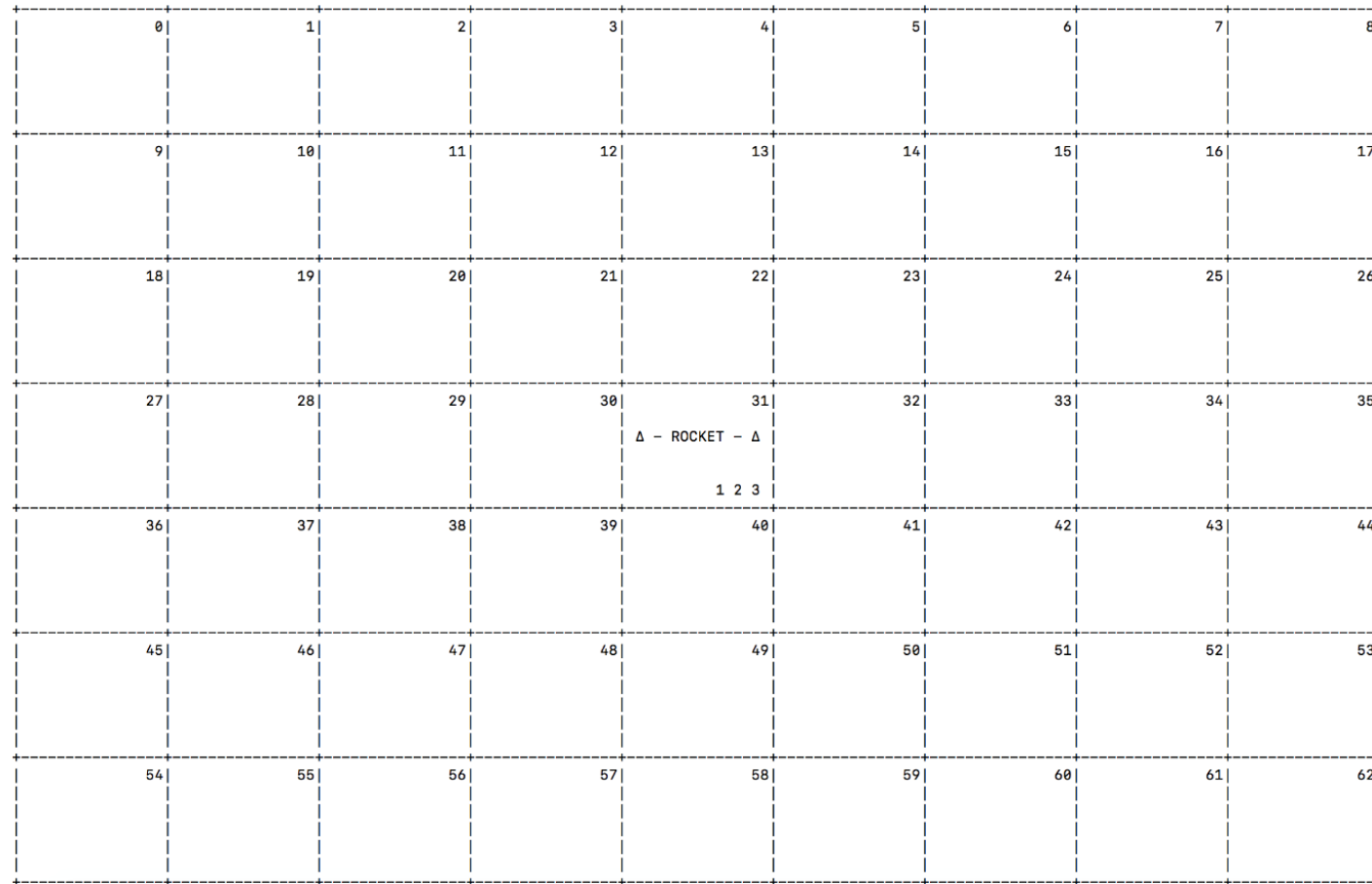
- [Wind Turn clockwise] : change the wind direction clockwise
- [Wind turn counter cw] : change the wind direction counter clockwise
- [Storm] : remove 1 HP of deadline
- [Squall] : push all player (1 case) in the wind direction
- [Storm rages on] : increase by 1 the storm gauge
- [Storm rages on & shuffle] : same + remix all storm cards

You can find the whole goals and rules in the file [goalsNrules]

You can also find the algorithms in the file [objectives]

Press [ENTER] to begin the game !

Plateau du jeu



Affichage

TURN OF PLAYER 1 : Jean

The next storm cards are : → [Squall] → [Storm] → [Wind turn counter cw] → [Storm rages on] → [Squall] → ...

The wind direction is: →

The storm gauge:

```
1   2       3       4       5   X
---↑
```

ACTIONS REMINING FOR PLAYER 1 (Jean): 4

Your set of tiles: ["FOR", "<< Empty >>", "ENDWHILE", "ENDIF", "[VAR] = FALSE"]

Pierre's set of tile: ["SHOW([VAR])", "<< Empty >>", "<< Empty >>", "<< Empty >>", "[VAR] = 10"]

Michel's set of tile: ["END", "WHILE", "BEGIN", "[VAR] = [VAR]-1", "IF"]

SELECT YOUR ACTION:

- | | |
|---------------------|---------------------|
| 1 - Draw a tile | 2 - Move on the map |
| 3 - Explore the map | 4 - Remove a tile |
| 5 - Swap a tile | 6 - Skip turn |

Piocher une tuile

Your set of tiles: ["BEGIN", "<< Empty >>", "SHOW([VAR])", "<< Empty >>"]

SELECT YOUR ACTION:

- | | |
|---------------------|---------------------|
| 1 - Draw a tile | 2 - Move on the map |
| 3 - Explore the map | 4 - Remove a tile |
| 5 - Swap a tile | 6 - Skip turn |

1

List of tiles unveiled: ["<< Empty >>", "[VAR] = 10", "END"]

Select a tile:

- 1 - << Empty >>
 - 2 - [VAR] = 10
 - 3 - END
- 3

Result of your action:

*** You appended your set with the following tile [END]**

Piocher une tuile (variante)

Your set of tiles: ["BEGIN", "<< Empty >>", "SHOW([VAR])", "<< Empty >>", "END"]

SELECT YOUR ACTION:

- | | |
|---------------------|---------------------|
| 1 - Draw a tile | 2 - Move on the map |
| 3 - Explore the map | 4 - Remove a tile |
| 5 - Swap a tile | 6 - Skip turn |

1

You already have 5 tiles in your hand ! You can change one card !

List of tiles unveiled: ["WHILE", "SHOW([VAR])", "[VAR] = 10 TO 0"]

Select a tile:

- 1 - WHILE
- 2 - SHOW([VAR])
- 3 - [VAR] = 10 TO 0
- 4 - SKIP

1

With which tile you want change ?

- 1 - BEGIN
- 2 - << Empty >>
- 3 - SHOW([VAR])
- 4 - << Empty >>
- 5 - END

2

Result of your action:

- * You removed the tile [<< Empty >>] from your set
- * You add the tile [WHILE] in your deck

Se déplacer

22	23	24
31 Δ - ROCKET - Δ 2 3	32 BEGIN	33
40	41 << Empty >> 1	42

SELECT YOUR ACTION:

1 - Draw a tile 2 - Move on the man

Result of your action:

* You changed your position from [32] to [41]

2

Select a position:

1 - Case number: 41

2 - Case number: 31

1

Poser une tuile

```

SELECT YOUR ACTION:
1 - Draw a tile
3 - Explore the
5 - Swap a tile

3
Your set of tiles:
You are on the board:

Select a tile:
1 - NB_TILE == LENGTH(TILES)
2 - BEGIN
3 - END
4 - [VAR] = [TILES[0]]
5 - << Empty >>

2
Select a position:
1 - 22
2 - 40
3 - 30
4 - 32
4

Result of your action:
* You posed the tile [BEGIN] to the position [32]
    
```

21	22	23
30	31	32
	Δ - ROCKET - Δ	BEGIN
	1 2 3	
39	40	41

VAR] = [VAR]-1", "<< Empty >>"]

Retirer une tuile

	22	23	24
	31	32	33
Δ - ROCKET - Δ		BEGIN	
		2 3	
	40	41	42
		<< Empty >>	
		1	

SELECT YOUR ACTION:

1 - Draw a tile

2 - Move on the map

3 - Explore the map / Remove a tile

Result of your action:

* You remove the tile [FOR] in the position [33]

4

Select a position to remove the tile on:

1 - 33

1

Echanger une tuile

```
Which tile you want swap from your deck?
1 - [VAR] = FALSE
2 - BEGIN
3 - END
SELECT YOU 4 - << Empty >>
1 - Draw a 5 - [VAR] = TRUE
3 - Explor
5 - Swap a 2

5
With which tile from Jean's deck?
1 - NB_T == LEN(T)
2 - END
The set of 3 - [VAR] = [VAR]-1
Select a pi
1 (Jean) - 3 1"]
2 (Pierre) - ["BEGIN", "SHOW([VAR])", "<< Empty >>", "END", "WHILE"]
1

Result of your action:
* You swap a tile with [Jean]
* Your tile exchanged is [BEGIN]
* Jean's tile exchanged is [[VAR] = [VAR]-1]
```

Passer son tour

Result of your action:
* You skiped your turn

Bourrasque

TURN OF PLAYER 1 : Jean

The next storm cards are : → [Squall] → [Storm] → [Wind turn counter cw] → [Storm rages on] → [Squall] → ...

The wind direction is: →

The storm gauge:

1 2 3 4 5 X
---↑

	22	23	24
	31	32	33
Δ - ROCKET - Δ		BEGIN	

Result of storm cards:

* The direction of wind was [→]

* Jean fell, deadline is now [24]

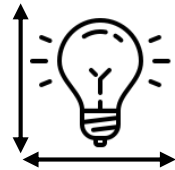
* Pierre has been moved from 31 to 32

* Michel has been moved from 31 to 32

Scroll up to see the log of your last action

The deadline: 24

Difficultés et limites rencontrées



Récupérer, réadapter et créer des concepts de jeu



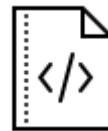
Garder un jeu jouable



Paramètres du jeu



Tester l'implémentation



Implémentation de l'interpréteur

Améliorations et perspectives



Elargir le public



Modifications des objectifs initiaux



Algorithmes de tri



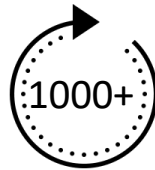
Suites de commandes Git



Implémentation de l'interpréteur



Affichage à l'aide de bibliothèques graphiques



Effectuer des simulations d'un grand nombre de parties

Merci de votre attention

Space Encoders

Projet de Bachelor

Patrick Sardinha