# The text adventure game

In this tutorial, we will develop a generic version of a game that allows you to create different text adventures. In fact, it's almost a "digital book" of adventures ...

Text adventures are based on non-linear, interactive narratives. That is, in each scene the player can select several options, with which s/he will define the plot of the adventure.

As a main abstraction, a narrative is described through a dictionary (in Python). The key for each entry in the dictionary is associated with the information of a scene, described by a tuple with 3 objects:

* A string of characters describing the scene text;
* A list of character strings with the text of the options available to the player;
* A list of keys with the indication of the next scene, depending on the option selected by the player.

For example, analyse the following narrative (minimalist):

livro = {}

livro["inicio"] = ("Choose one of the doors:",\

["You open the left door.", " You open the right door."],\

["1","2"])

livro["1"] = ("You lose.",[],[])

livro["2"] = ("You win.",[],[])

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| --- | --- |
| **Eye** | Note that when the list of options is empty, it corresponds to one of the game ends ...  A non-linear narrative can have several distinct endings... |

We can therefore imagine, for this minimalist narrative, that the game will show the following:

Choose one of the doors:

1- You open the left door.

2- You open the right door.

Select your option: **1**

You lose.

\*\*\* The End \*\*\*

Now let's try the other option:

Choose one of the doors:

1- You open the left door.

2- You open the right door.

Select your option: **2**

You win.

\*\*\* The End \*\*\*

With this narrative simplicity, it doesn't seem like a very attractive game. However, with some minor changes to the narrative text, for example, at the level of option 1, you will see how easy it is to open up new adventure paths:

livro = {};

livro["inicio"] = ("Choose one of the doors:",\

["You open the left door.", " You open the right door."],\

["1","2"])

livro["1"] = ("Passing the door on the left, you enter a well-lit corridor!",["You wait...", "Walk the corridor"],["30", "35"])

livro["2"] = ("You win.",[],[])

livro["30"] = ("You lose.", [],[])

livro["35"] = ("You find the treasure!!!", [],[])

Tentemos explorar a opção 1.

Choose one of the doors:

1- You open the left door.

2- You open the right door.

Select your option: **1**

Passing the door on the left, you enter a well-lit corridor!

1- You wait...

2- Walk the corridor

Select your option: **1**

You lose.

\*\*\* The End \*\*\*

Or:

Choose one of the doors:

1- You open the left door.

2- You open the right door.

Select your option: **1**

Passing the door on the left, you enter a well-lit corridor!

1- You wait...

2- Walk the corridor

Select your option: **2**

You find the treasure!!!

\*\*\* The End \*\*\*

# The game loop

This game is very simple, implemented by a single function - jogo\_aventura() - since you only have to present the narrative according to its structure. This function has two parameters: the book (a dictionary) and the initial state.

The game loop will then be as follows, with the variable estado to verify if the game is over "fim"...

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| --- | --- |
| **Eye** | The inicial state(estado) is also passed as a second parameter, since each book may have different initial states. Or it could be a continuation of a previous session, in which the player starts his adventure at an later stage... |

def jogo\_aventura(livro, estado):

while estado != "fim":

# le a cena atual e imprime o texto

texto, opcoes, prox\_estado = livro[estado]

print(texto)

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| --- | --- |
| **Eye** | Observe simplicity as the tuple that defines the scene is read in a single instruction, where values are assigned to three variables: texto, opcoes and prox\_estado. |

# verifica se não é o fim do jogo e imprime as opções da narrativa

if opcoes != []:

for i in range(len(opcoes)):

print(str(i+1) + "- " + opcoes[i])

# le opção do jogador e valida-a com o número de opções

opcao = 0

while opcao<1 or opcao>len(opcoes):

opcao = int(input("Selecione a sua opção: "))

# determina a próxima cena de acordo com a opção do jogador

estado = prox\_estado[opcao-1]

else:

print("\*\*\* Fim \*\*\*")

estado = "fim" # fim do jogo - sai do ciclo

# A simple adventure game

Play the following narrative for a first game (in Portuguese):

livro = {};

livro["inicio"] = ("Encontras-te ao fundo de um corredor de uma gruta. \nÀ tua frente encontram-se 3 portas.\nAtrás de ti, pelo corredor aproxima-se algo aterrador. O que fazes?",\

["Abres a porta com o símbolo da água.","Abres a porta com o símbolo do ar.", "Abres a porta com o símbolo da terra."],\

["1","2","3"])

livro["1"] = ("Abres a porta e uma torrente de enorme caudal empurra-te pelo corredor...\nTudo fica escuro à tua volta no meio do turbilhão de água revolta... perdes a consciência...\nPerdeste.",\

[],\

[])

livro["2"] = ("Abres a porta e encontras-te em frente de um enorme precipício.\nUm enorme dragão aproxima-se e leva-te nas suas garras até te largar em segurança em tua casa.\nÉ o teu dragão. Estás a salvo.",\

[],\

[])

livro["3"] = ("Abres a porta e vês dois corredores. Uma leve brisa afaga a tua face direita...",\

["Vais pelo túnel da esquerda.","Vais pelo túnel da direita."],\

["4","5"])

livro["4"] = ("Encontras-te em frente a um precipício, atravessado por uma ponte de cordas em mau estado que te leva à saída da gruta.\nAtravessas a ponte em direção à liberdade...\nMas a ponte cai... Perdeste.\n",\

[],\

[])

livro["5"] = ("O túnel da direita leva-te à saída da gruta, como pressagiava a brisa proveniente de lá. Estás em liberdade!",\

[],\

[])

You can play through the following instruction:

jogo\_aventura(livro, "inicio")

# A more complex adventure... (in Portuguese)

The game "[Merlin](merlin.py)" is an adventure game that was developed by Luís Reis and Ana Alves as part of their master's thesis at FEUP.

You just have to copy this interactive narrative to the file with the code you just developed and played, replacing:

jogo\_aventura(livro, "inicio")

by:

jogo\_aventura(story, "start")

# Final challenge

Build your own interactive narrative!

|  |  |
| --- | --- |
| **Share with person** | **Share** your game! |