Inteligência Artificial

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Pergunta 1: How many rooms are not occupied?

```
# 1 - Quantas salas _não_ estão ocupadas?
def question1():
    counterOccuped = 0
    counterNotKnown = 0
    for roomNumber in range(5, len(room_list) + 1):
        counterObj = 0
        for obj in object_list:
            if obj[0] == roomNumber:
                counterObj += 1
                if obj[1] == "person":
                    counterOccuped += 1
        if counterObj == 0:
            counterNotKnown += 1
    print( " There are %d rooms not occuped by people in %d known rooms. " % (((10 - counterNotKnown) - counterOccuped), (10 - counterNotKnown)) )
```

Pergunta 2: How many suites did you find until now?

```
# 2 - Quantas suites encontraste até agora?
def question2():
    counter = 0
    for roomNumber in range(1, len(room_list) + 1):
        if (getRoomType(roomNumber) == "Suite room"):
            counter += 1
    print( " I've found %d Suite rooms so far. " % counter )
```

Pergunta 3: Is it more likely to find people in the corridors or inside the rooms?

```
# 3 - É mais provavel encontrar pessoas nos corredores ou nos quartos?
def question3():
    counterHall = 0
    counterRooms = 0
    for obj in object_list:
        if obj[1] == "person":
            if obj[0] <= 4:
                counterHall += 1
            else:
                counterRooms += 1
    if counterHall > counterRooms:
        print( " Is more likely to meet people in the halls. " )
    elif counterHall < counterRooms:
        print( " Is more likely to meet people in the rooms. " )
    elif counterHall == 0 and counterRooms == 0:
        print ( "I don't know any person yet. " )
    else:
        print( " The probability of find people in rooms or in the halls is equal. " )
```

Pergunta 4: If you want to find a computer, to which type of room do you go to?

```
# 4 - Se queres encontrar um PC, para que sala vais?
def question4():
    roomNumber = -1
    for obj in object_list:
        if obj[1] == "computer":
            if getRoomType(obj[0]) == "Meeting room" or getRoomType(obj[0]) == "Generic room": # Only for privacy :)
                roomNumber = obj[0]
                break
            roomNumber = obj[0]
    if roomNumber == -1:
        print( " I don't know any room with a computer. " )
    else:
        print( " Go to room number %d to find a Computer. " % roomNumber )
```

Pergunta 5: What is the number of the closest single room?

```
# 5 - Qual é o numero da sala (Single room) mais próxima?
def closestSingleRoom(atualX, atualY):
    min_room = -1
    min_distance = 9999999
    for room in room_list:
        if (getRoomType(room[0]) == "Single room"):
            tempDistance = calculateDistance(atualX, atualY, dijsktraRooms(match_room(atualX, atualY), room[0]))
            if (tempDistance < min_distance):
                min_distance = tempDistance
                min_room = room[0]
    return min_room

def question5():
    csr = closestSingleRoom(x_ant, y_ant)
    if csr != -1:
        print("The closest Single room is %d." % csr)
    else:
        print("I don't know any Single room yet.")
```

Pergunta 6: How can you go from the current room to the elevator?

```
# 6 - Como podes ir da sala onde estás até ao elevador?
def question6():
    roomPath = getRoomPath(dijsktraRooms(match_room(x_ant, y_ant), -1), match_room(x_ant, y_ant))
    roomPath = roomPath[1:-1]
    result = " Visit the follow rooms to go to the Elevator: "
    for room in roomPath:
        result += str(room) + "  "
    print(result)
```

Pergunta 7: How many books do you estimate to find in the next 2 minutes?

```
import time
from Graph import Graph
import CoordHelper

startTime = time.time()
```

```
# 7 - Quantos livros achas que vais encontrar nos próximos dois minutos?
def question7():
    actualTime = time.time()
    counterBooks = 0
    for obj in object_list:
        if obj[1] == "book":
            counterBooks += 1
    result = (120 * counterBooks) / (actualTime - startTime)
    print( " I think I will find %d books in the next 2 minutes. " % int(result))
```

Pergunta 8: What is the probability of finding a table in a room without books but that has at least one chair?

```
# 8 - Qual a probabilidade de encontrar uma mesa em uma sala que não tenha livros mas tenha pelo menos uma cadeira?
def question8():
    counterRoomWithChairAndNotBook = 0
    counterRoomWithTableAndChairAndNotBook = 0
    for room in range(5, 14):
        counterBook = 0
        counterChair = 0
        counterTable = 0
        for obj in object_list:
            if obj[0] == room:
                if obj[1] == "chair":
                    counterChair += 1
                if obj[1] == "book":
                    counterBook += 1
                if obj[1] == "table":
                    counterTable += 1
        if counterChair > 0 and counterBook == 0:
            counterRoomWithChairAndNotBook += 1
        if counterChair > 0 and counterTable > 0 and counterBook == 0:
            counterRoomWithTableAndChairAndNotBook += 1
    if counterRoomWithChairAndNotBook == 0:
        print( " I don't know any room without books but that has at least one chair yet. " )
    else:
        result = counterRoomWithTableAndChairAndNotBook / counterRoomWithChairAndNotBook
        print( " The probability of finding a table in a room without books but that has at least one chair is %d. " % result )
```