

# Weekly report n°4

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## 1 Session 4:

As a team, we decided to use BFS for the maze resolution algorithm and the complexity of the BFS is  $O(m)$ .

## 2 Implementation

1. Initializes each vertex, setting parent to NULL.
2. Implements BFS to traverse the graph from the starting node to find the shortest path to the exit node.
3. Traces back from the exit node to the start using the parent pointers to print the path.

## 3 New data structure

```
Struct vertex {
    Unsigned int id;
    Struct vertex *top, *left, *bottom, *right;
    Struct vertex *parent;
    Unsigned char is_exist;
};
```

## 4 Tests

- **Djakhar:**
  - Check if the path is correct.
- **King:**
  - Test for big maze.
- **Edgar and Mensanh:**
  - Performance and complexity.
- **Fatima:**
  - Display maze an path using colors.
- **Kian:**
  - Check if it's really the shortest path from the start.
- **Fauste:**
  - Check path for  $1*n$  ,  $1*1$  maze.