Hunt the Wumpus

http://en.wikipedia.org/wiki/Hunt_the_Wumpus
Hunt the Wumpus

1. Start in a random room.
2. Move from room to room.
3. Avoid hazards:
   • Bats move you randomly,
   • The Pit kills you,
   • The Wumpus eats you.
Hunt the Wumpus

4. Warning messages show nearby hazards.
5. Shoot arrows into nearby rooms.
6. Hit the wumpus to win.
7. You lose if you die or run out of arrows.
Data

We to represent the following data:

• The connectivity of the map
• The positions of the bats, pit and wumpus
• The player’s position
• The number of arrows left
Design principles

Abstraction:

• Divide code and data into independent chunks.

• One idea per object or method

Encapsulation:

• Keep code close to the data it uses.
Classes

Player
- myMap
- myRoom
- myArrows

Map
- myRooms

Room
- myNeighbours
- myHasBats
- myHasPit
- myHasWumpus

Input
Data Structure
Flow chart

Start → Initialise map → Enter random room

Game over?

Move or shoot?

M N Y S

End

Move → Shoot
Move

Choose neighbouring room

Bats?

Pit?

Wumpus?

Move to random room.

Game over.

End
Shoot

1. Choose neighbouring room
2. Hit wumpus?
   - Y: Game over.
   - Z: Decrement # arrows.
3. Arrows left?
   - > 0: Start
   - 0: End
The main method

When you write a stand-alone java program you need to create a main method.

The main method is the starting point for executing a program.
The main method

The main method has a standard syntax:

```java
public static void main(
    String args[])
{
    // start here
}
```
The main method

Things to note:

• main is public, so it can be externally accessed.

• main is static, so it can be run without creating an object (although it must belong to a class)

• main has return type void
Running a java program

From the command line:

- Create a JAR file
- Select the main method
- Run from terminal:
  
  % java -jar Wumpus.jar
The main method

The `args` parameter to main is an array of strings.

Each string is one command line argument to the program:

```bash
% java -jar Wumpus.jar Malcolm 27
// args[0] == "Malcolm"
// args[1] == "27"
```