
# Minecraft Modding Workshop (Handout)

# Introduction

- Minecraft on a raspberry pi
  - How to start the game
  - Controls (if needed)
- Show development environment
  - Python Shell (Python2)
    - template can be found here: /workshops/workshop-minecraft-hide-and-seek/
  - How do i write a program
  - Start the program
    - F5 to run the program
- Explain how the game and the program works together
  - Explain API interface
  - Show API Cheatsheet

# Basic exercises

- Create our first program
  - Post text to game chat „Hello Devoxx4Kids“
- Determine position of the player
  - And post it to the game chat
- Create block in world
  - One block
  - Different types
  - Create several blocks (optional)

# Hide and seek

- Create a block randomly in the world
  - The first step might be in a flat world
  - Create a flat world
    - Goto /workshops/workshop-minecraft-modding-raspberry-pi
    - Then run ./flat_world/add-flat-world-to-minecraft.sh
- Check if we found the block
  - Update own position in a loop
  - Check if we found the block
  - Winner notification
- Play the game in a normal world (not flat)
  - It would be useful to get a hint
- Game is now basically playable

# Enhance the game

- Help to find the block
  - Message to player (distance)
- Hide block on surface
- Add warm/cold trend
- Change winner notification
  - Something else happens when you find the block
- Other ideas from the kids

# Commands

| | |
|---|---|
| minecraft.Minecraft.create() | Create connection to Minecraft |
| mc.postToChat(„text“)<br>Example: mc.postToChat(„Hallo“) | Post a text message to the game chat |
| mc.player.getPos() | Get the player's position in the world (x,y,z) |
| mc.setBlock(x,y,z,block-id)<br>Example:<br>mc.setBlock(0,0,0,block.WOOD.id) | Set block to given position (x,y,z, block-id) |
| time.sleep(Sekunden)<br>Example: time.sleep(3) | Stop the game for some seconds |
| random.randrange(from,to)<br>Example: random.randrange(5,12) | Return a randomly created number in an area from → to |
| mc.setBlocks(x,y,z,x1,y1,z1,block-Typ)<br>Example:<br>mc.setBlocks(0,0,0,5,5,5,246) | Create several blocks with block-id between position x, y, z and position x1, y1, z1 |

# Commands

| | |
|---|---|
| runde3DVektor(aVector) | Function to convert a vector to a vector with integers<br><br>Access to coordinates:<br>randomPosition = runde3DVektor(position)<br>randomPosition.x = 100<br>randomPosition.y = randomPosition.y + 50 |
| berechneAbstandZwischenZweiPunkten(point1, point2) | Calculates the distance between two points |
| mc.getHeight(x,z) | Get the position (y) of the heighest block in world |

# Control structures

| Case differentation | Loops |
|---|---|
| if expression:<br>  statements<br>else:<br>  statements | while expression:<br>  statements |
| Example:<br>if distanceToBlock < 2:<br>  found block<br>else<br>  continue search | Example:<br>while searchingForBlock == True:<br>  continue search |
| Example:<br>if distanceToBlock < 2:<br>  mc.postToChat(„Found block“)<br>else<br>  mc.postToChat(„Continue search“)<br>  mc.postToChat(„you can do it“) | Example:<br>  flower = 38<br>  while True:<br>  x, y, z = mc.player.getPos()<br>  mc.setBlock(x, y, z, flower)<br>  sleep(1) |

# Block-id

- WOOD (17) 
- GOLD_ORE (14) 
- DIAMOND_BLOCK (57) 
- GLOWING_OBSIDIAN (246) 
- FLOWER_YELLOW (37) 
- TNT (46) 
- CHEST (54)