

# UNITY PLATFORM

DEMONSTRATION: GAME LOOP, TOOLS, PROJECT

TOMÁŠ POLÁŠEK [IPOLASEK@FIT.VUTBR.CZ](mailto:IPOLASEK@FIT.VUTBR.CZ)

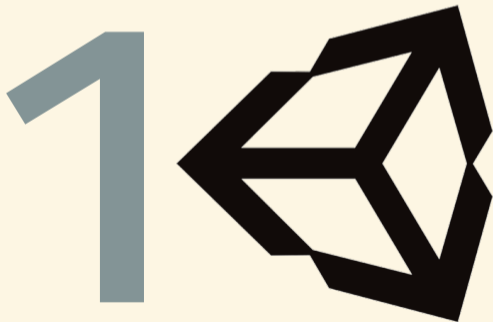
BRNO UNIVERSITY OF TECHNOLOGY

FACULTY OF INFORMATION TECHNOLOGY

DCGM, [CPhoto@FIT](mailto:CPhoto@FIT)

FACULTY OF FINE ARTS

GAME MEDIA STUDIO



# GAME LOOP

# WHAT IS LOOPING?

- “Keep the Game Running” → Interactivity
- Execution Blocks
  1. Input Processing
  2. Game Update
  3. Render
- Soft Real-Time System
- Frames & Deadline

```
West of House                               Score: 0           Moves: 0

ZORK I: The Great Underground Empire
Copyright (c) 1981, 1982, 1983 Infocom, Inc. All rights reserved.
ZORK is a registered trademark of Infocom, Inc.
Revision 88 / Serial number 840726

West of House
You are standing in an open field west of a white house, with a boarded front
door.
There is a small mailbox here.

>_
```

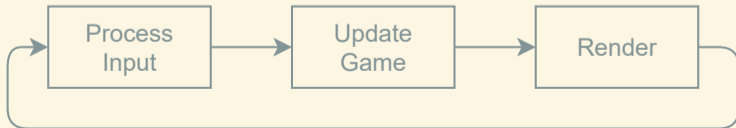
Source: Zork



Source: Robert Nystrom – Game Programming Patterns [1]

# SIMPLE GAME LOOP

```
while (!quit) {  
    processInput();  
    updateGame();  
    render();  
}
```



# DELAYED GAME LOOP

```
while (!quit) {  
    var start = getTime();  
  
    processInput();  
    updateGame();  
    render();  
  
    sleep(FRAME_MS - (getTime() - start));  
}
```



# TIMED GAME LOOP

```
var previous = getTime();  
var lag = 0.0;  
while (!quit) {  
    lag += getTime() - previous;  
    previous = getTime();  
  
    processInput();  
    while (lag >= FRAME_MS)  
    { updateGame(); lag -= FRAME_MS }  
    render();  
}
```

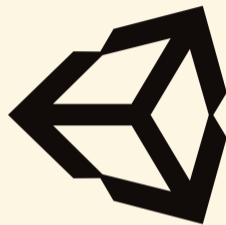


Unity

# UNITY ENGINE



- Unity
- GitHub for Unity
- JetBrains Rider
- Optionally:
  - ▶ Blender
  - ▶ GIMP
  - ▶ Inkscape
  - ▶ Krita



# DEMONSTRATION

## ADDITIONAL RESOURCES

- [Manual] Unity User Manual
- [Manual] Unity Learn

Thanks For  
Your Attention!

150

143

SPREAD

CONCSN  
MISSILE

020

Descent

# REFERENCES I

- [1] R. NYSTROM. ***GAME PROGRAMMING PATTERNS***. UK: Genever Benning, 2014. ISBN: 0990582906.