PA01: Build and Run Pilot Engine • PA01 : Build and Run Pilot Engine • Objective Description <u>Downloading Source Code</u> Install CMake Build and Run Pilot Windows Generate the project files with CMake • Open Pilot.sln with Visual Studio Set PilotEditor project as Startup Project Build Solution • Run PilotEditor MacOS Generate the project files with CMake • Open Pilot.xcodeproj with Xcode • Set PilotEditor project as Startup Project Build Solution • Run PilotEditor • Linux • Configure development environment

• Open the root directory with VSCode

Building Pilot engine development environment for upcoming programming assignments

• Getting familiar with Smartchair (Assignment Submission Platform) submission flow

Build Solution

• Play around in PilotEditor

Editor Mode

Game Mode

• Submission

Deadline

Grading and Q&A

Attention

Objective

Description

Download from GitHub

Install CMake

本地磁盘 (C:)

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PS4 (O:)

• Download from our course-site

Building Pilot engine development environment

Downloading Source Code

• https://github.com/BoomingTech/Pilot

Course Team provided two methods to download the source code:

• https://cdn.boomingtech.com/games104_static/upload/Pilot.zip

Run PilotEditor

Pilot Engine uses CMake to generate project files. Please refer https://cmake.org/download/ for downloading and installing CMake **Build and Run Pilot** Windows Visual Studio 2019 or later is the recommended IDE on Windows. Generate the project files with CMake • Run the following command from Pilot root directory: \$ cmake -S engine/ -B build Open Pilot.sln with Visual Studio 📙 | 🛂 📙 🖚 | build 主页 📙 > 此电脑 > 新加卷 (E:) > Work > pilot > build > 名称 修改日期 类型 > ≱ 快速访问 .vs 2022/4/1 17:42 文件夹 > OneDrive _deps 2022/4/1 17:38 文件夹 2022/4/1 17:37 cmake 文件夹 🗸 🖳 此电脑 CMakeFiles 2022/4/3 18:56 文件夹 > 🧊 3D 对象 CPM_modules 2022/4/3 18:56 文件夹 > 🚪 视频 PackageProjectInclude 文件夹 2022/4/1 17:39 ■ 图片 shader 2022/4/3 18:56 文件夹 > 🖺 文档 2022/4/1 17:39 文件夹 source > 🖶 下载 х64 2022/4/1 17:42 文件夹

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JAKE 文件

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CMAKE 文件

CMAKE 文件

类型: VC++ Project Filters File

修改日期: 2022/4/1 17:42

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cmake_install.cmake

CPackConfig.cmake

CPackSourceConfig.cmake

cpm-package-lock.cmake

CMakeCache.txt

▼ INSTALL.vcxproj VC++ Project 2022/4/3 18:56 PS4 (O:) VC++ Project Fil... INSTALL.vcxproj.filters 2022/4/1 17:42 > 🧀 网络 PACKAGE.vcxproj 2022/4/3 18:56 VC++ Project PACKAGE.vcxproj.filters VC++ Project Fil... 2022/4/1 17:42 parcer_header.h H 文件 2022/4/1 17:46 🛺 Pilot.sln Visual Studio Sol... 2022/4/3 18:56 PilotCodeGen.vcxproj 2022/4/1 17:46 VC++ Project PilotCodeGen.vcxproj.filters 2022/4/1 17:42 VC++ Project Fil... PilotPreCompile.vcxproj VC++ Project 2022/4/3 18:56 PilotPreCompile.vcxproj.filters 2022/4/3 18:56 VC++ Project Fil... PilotRuntimeConfig.cmake CMAKE 文件 2022/4/1 17:39 PilotRuntimeConfigVersion.cmake 2022/4/1 17:39 CMAKE 文件 precompile.vcxproj 2022/4/1 17:46 VC++ Project precompile.vcxproj.filters 2022/4/1 17:42 VC++ Project Fil... PC 文件 spdlog.pc 2022/4/3 18:55 ZERO_CHECK.vcxproj 2022/4/3 18:56 VC++ Project ZERO_CHECK.vcxproj.filters 2022/4/1 17:42 VC++ Project Fil... 34 个项目 选中 1 个项目 15.6 KB Set PilotEditor project as Startup Project File Edit View Project Build Debug Analyze Tools Extensions Win Test Solution Explorer ○ ○ 🔐 🛗 - To - S 🗊 🔑 🗕 - م Search Solution Explorer (Ctrl+;) Solution 'Pilot' (14 of 14 projects) ▲ CMakePredefinedTargets ▶ 🔁 ALL_BUILD ■ INSTALL ▼ PACKAGE ▶ TERO_CHECK Engine PilotEdite Build ♣ PilotPreC Rebuild ♣ PilotRunt Clean PilotShac View ThirdParty Analyze and Code Cleanup **Project Only** 🕍 Distributed Project Build Distributed Project Rebuild Scope to This **Build Dependencies** Add Class Wizard... Ctrl+Shift+X Manage NuGet Packages...

Set as Startup Project Debug Cut Ctrl+X Remove Del Rename F2 Properties Solution Unload Project Error List Load Direct Dependencies of Project Load Entire Dependency Tree of Project Rescan Solution Display Browsing Database Errors Clear Browsing Database Errors Open Folder in File Explorer Run Full Configuration Check Fix Incomplete Configurations **Properties** Alt+Enter **Build Solution** Build Debug Analyze Extensions Window Edit View Project Test Tools Build Solution Ctrl+Shift+B Rebuild Solution Clean Solution Solution Explorer) O A A O - 5 a 🗓 Distributed Solution Build Distributed Solution Rebuild Search Solution Explorer (Ctrl+; Build full program database file for solution 🗖 Solution 'Pilot' (14 of 14 pr Run Code Analysis on Solution Alt+F11 CMakePredefinedTarge ▶ 🔁 ALL_BUILD **Build PilotEditor** Ctrl+B **INSTALL** Rebuild PilotEditor ▼ PACKAGE Clean PilotEditor ▶ ★ ZERO_CHECK Run Code Analysis on PilotEditor Engine **Project Only** ▶ PilotEditor 🕍 Distributed Project Build PilotPreCompile ♣ PilotRuntime Distributed Project Rebuild ▶ ₱ PilotShaderCompile Batch Build... ThirdParty Configuration Manager... Run PilotEditor • You can use keyboard shortcut F5 (Start debugging) or Ctrl + F5 (Start Without debugging). **MacOS** Xcode is the recommended IDE on MacOS Generate the project files with CMake • Run the following command from Pilot root directory: \$ cmake -S engine/ -B build -G "Xcode" pilot — -zsh — 80×24 Last login: Sun Apr 3 15:45:58 from 192.150.15.109

booming@BoomingdeiMac pilot % cmake -S engine/ -B build -G "Xcode" Open Pilot.xcodeproj with Xcode build Ô \odot pilot clangLog.txt bin build _deps build_linux.sh build cmake cmake engine cmake_install.cmake LICENSE CMakeCache.txt README.md CMakeFiles CMakeScripts CPackConfig.cmake CPackSourc...onfig.cmake CPM_modules cpm-package-lock.cmake PackageProjectInclude parser_header.h

> Pilot.build Pilot.xcodeproj

shader source spdlog.pc

PilotRuntimeConfig.cmake PilotRuntim...ersion.cmake

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No Selection

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blend_weight[1] ▶ blend_mask_file_path[2]

blend_ratio[1]

▼ PGameObjectMeshDesc

normalTextureFile:

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skeleton_binding_file:

0.000 0.000 0.000

▼ <MotorComponent>

▼ <CameraComponent>

m_move_speed: 5.000

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objects/character/player/componer ▼ PGameObjectMaterialDesc baseColorTextureFile:

objects/character/player/compone metallicRoughnessTextureFile: objects/character/player/componer

objects/character/player/componer

objects/character/player/compone ▼ PSkeletonBindingDesc

objects/character/player/componer

▶ PSkeletonAnimationResult

frame_position:

<MeshComponent> ▼ m_raw_meshes[1]

▶ AnimationResult

mesh_file:

0.000

level

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Folder

object

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< △ >

+ ←

booming@BoomingdeiMac ~ % cd Documents/pilot

Set PilotEditor project as Startup Project

flatbuffers

 ALL_BUILD flathash

PilotCodeGen

PilotRuntime m spdlog

Open the root directory with VSCode

<u>File Edit Selection View Go Run Terminal Help</u>

> engine

1 LICENSE README.md

> OUTLINE

Build Solution

> cmake

> engine

/allWithDoor_2

/allWithDoor_3

allWithDoor_4 /allWithDoor_5

/allWithWindow_1

/allWithWindow_2

▼ File Content

▼ objects

▶ textures

1-1.level.json

player.object.json

Submit the screenshot image on Smartchair.

Grading and Q&A

this assignment will not be graded.

For SmartChair operating instructions, please refer:

Deadline for submmision: GMT+8 20::00::00 Apr 18, 2022

• https://cdn.boomingtech.com/games104_static/upload/GAMES104_SmartChair_Submission_Guide.pdf

• The objectives for this assignment are building development environment and getting familiar with Smartchair submission flow. So

▼ asset

Deadline

Attention

allBlock_1

Terminal → Run build task → build linux debug

··· ① README.md ×

31 ## Build Pilot

<u>File Edit Selection View Go Run Terminal Help</u>

flatc m imgui uninstall PilotShaderCompile

CMakeLists.txt

▶ Carrie ▼ C ALL_BUILD Product Debug Source Control Window Help

spdlog ZERO_CHECK json11 Edit Scheme.. Manage Schemes.. update mappings ▶ C Products No Editor ▶ 🦲 Frameworks + Filter **Build Solution** You can use keyboard shortcut \(\mathbb{H} \mathbb{B} \) (Cmd + B) Run PilotEditor • You can use keyboard shortcut \mathbb{H}R (Cmd + R) Linux VSCode is the recommended IDE on Linux. Following procedures were tested on Ubuntu 20.04 LTS. Configure development environment Follow the instruction in README.md.

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL

boomingtech@boomingtech-MS-7850:~/Desktop/Pilot/pilot\$

① README.md > ● # Pilot > ● ## build linux debug

29 - [VSCode] (https://c build linux release

pilot - Visual Studio Code

Toggle Terminal Ctrl +

configured tasks 🛞

You may execute the **build-windows.bat**. This batch file will use the cmake to generate the **Visual Studio** projects for you, and open the

tions) (Optional)

README.md - pilot - Visual Studio Code

Visual Studio automatically. You can use the **Visual Studio** to build the project.

\$ build_linux.sh \$ cmake -S engine/ -B build **R** LICENSE ### Build on MacOS To compile Pilot, you must have the most recent version of Xcode installed. Then run 'cmake' from the project's root directory, to generate a project of Xcode \$ cmake -S engine/ -B build -G "Xcode" ### Build on Ubuntu You can merely execute the **build_linux.sh** to build the binaries.

But we strongly recommend the **VSCode** for you. You may use the **VSCode** to open the repository root folder. The **tasks.json** has been created for you. You may select **Terminal** from the menu and click **Run Build Task**, and choose **build linux debug** task. And then, the related build commands will be excuted by **VSCode** for you. ## Debug Pilot You can merely use the **Visual Studio** to debug this project. But you should set the **PilotEditor** as the startup project. PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL 🍞 bash 🕂 🔻 🖽 🏥 🔨 🗙 boomingtech@boomingtech-MS-7850:~/Desktop/Pilot/pilot\$ git status Your branch is up to date with 'origin/main'. nothing to commit, working tree clean boomingtech@boomingtech-MS-7850:~/Desktop/Pilot/pilot\$ [] > OUTLINE Run PilotEditor Run → Run Without Debugging Play around in PilotEditor **Editor Mode** Translate, rotate, and scale game objects Add and delete game objects Reload and save current level Game Mode Controlling the robot (ASWD to run and press shift for sprint) **Submission** After running PilotEditor successfully, choose your favorite view and take a screenshot. ▼ Components Details Editor Mode Name Player ▼ <TransformComponent> Wall_2 Wall_3 3.000 -6.360 0.000 Wall 4 Rotation Wall_5 Wall_6 [0.000] [0.000] [0.661] [0.750]Scale Wall_7 Wall_8 1.000 1.000 1.000 ▼ <AnimationComponent> Wall_9 Wall_10 lacktriangledown AnimationComponentRes skeleton_file_path: $wall_1$ Wall_12 asset/objects/character/player/compone ▼ BlendState $Wall_13$ $Wall_1$ Wall_15 Wall_16 ▶ blend_clip_file_path[1] ▶ blend_clip_file_length[1] Wall 17 blend_anim_skel_map_path[1] WallWithDoor_1

• If you have any question during building Pilot development envrionment, you can ask in our Wechat Course Group or post on our course forum. Course Team and Course Supporters will answer. • Course Forum : https://games-cn.org/forums/forum/games104-forum/ • Wechat Course Group: Please add gameswebinar as Friend and send "104" to enter the course group

• Each assignments must be accomplished independently.

• Please submit your assignment before the deadline.