



TRABALHO

COMPUTAÇÃO GRAFICA

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OBJETIVOS

- AMBIENTE GRÁFICO 3D INTERATIVO
- CÂMERA INTERATIVA
- OBJETOS 3D RENDERIZÁVEIS
- ILUMINAÇÃO
- SOMBREAMENTO
- TEXTURAS
- MOVIMENTO
- SOMBRAIS
- VBO (VERTEX BUFFER OBJECT) E VAO (VERTEX ARRAY OBJECT)
- SKYBOX AVANÇADO
- SHADER PROGRAMS
- ATUALIZAÇÃO DE TEMPO
- AMBIENTE GRÁFICO CONFIGURÁVEL
- INSTALAÇÃO DE DEPENDÊNCIAS

BIBLIOTECAS

- PYGAME
- MODERNGL
- NUMPY
- GLM
- PYWAVEFRONT

CÓDIGO

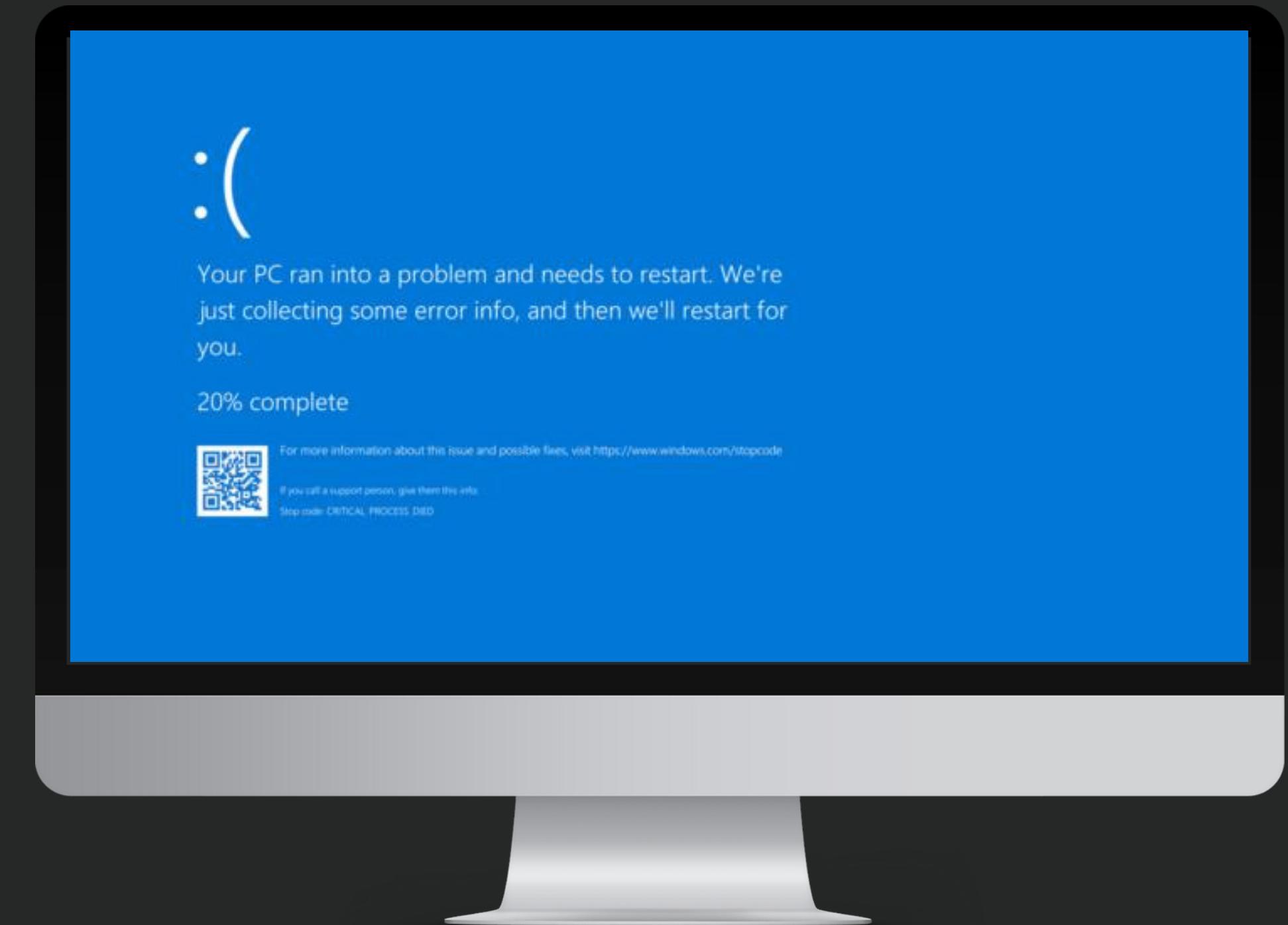
The image shows a code editor interface with three main panes:

- Left Pane (File Tree):** Shows the project structure with the following files and folders:
 - objects\cat
 - 20430_cat_diff_v1.jpg
 - 20430_Cat_v1_NEW.mtl
 - 20430_Cat_v1_NEW.obj
 - 20430_Cat_v1_NEW.obj.bin
 - 20430_Cat_v1_NEW.obj.json
 - shaders
 - advanced_skybox.frag
 - advanced_skybox.vert
 - default.frag
 - default.vert
 - shadow_map.frag
 - shadow_map.vert
 - skybox.frag
 - skybox.vert
 - textures
 - skybox
 - skybox1
 - img_1.png
 - img_2.png
 - img.png
 - test.png
 - tmp
 - stderr.txt
 - stdout.txt
- Middle Pane (Package Structure):** Shows the contents of the venv directory:
 - Include
 - Lib
 - Scripts
 - pyvenv.cfg
 - camera.py
 - launch.bat
 - launch.py
 - light.py
 - main.py
 - mesh.py
 - model.py
 - README.md
 - requirements.txt
 - scene_renderer.py
 - scene.py
 - shader_program.py
 - texture.py
 - vao.py
 - vbo.py
- Right Pane (Code Editor):** Displays the content of the launch.py file.

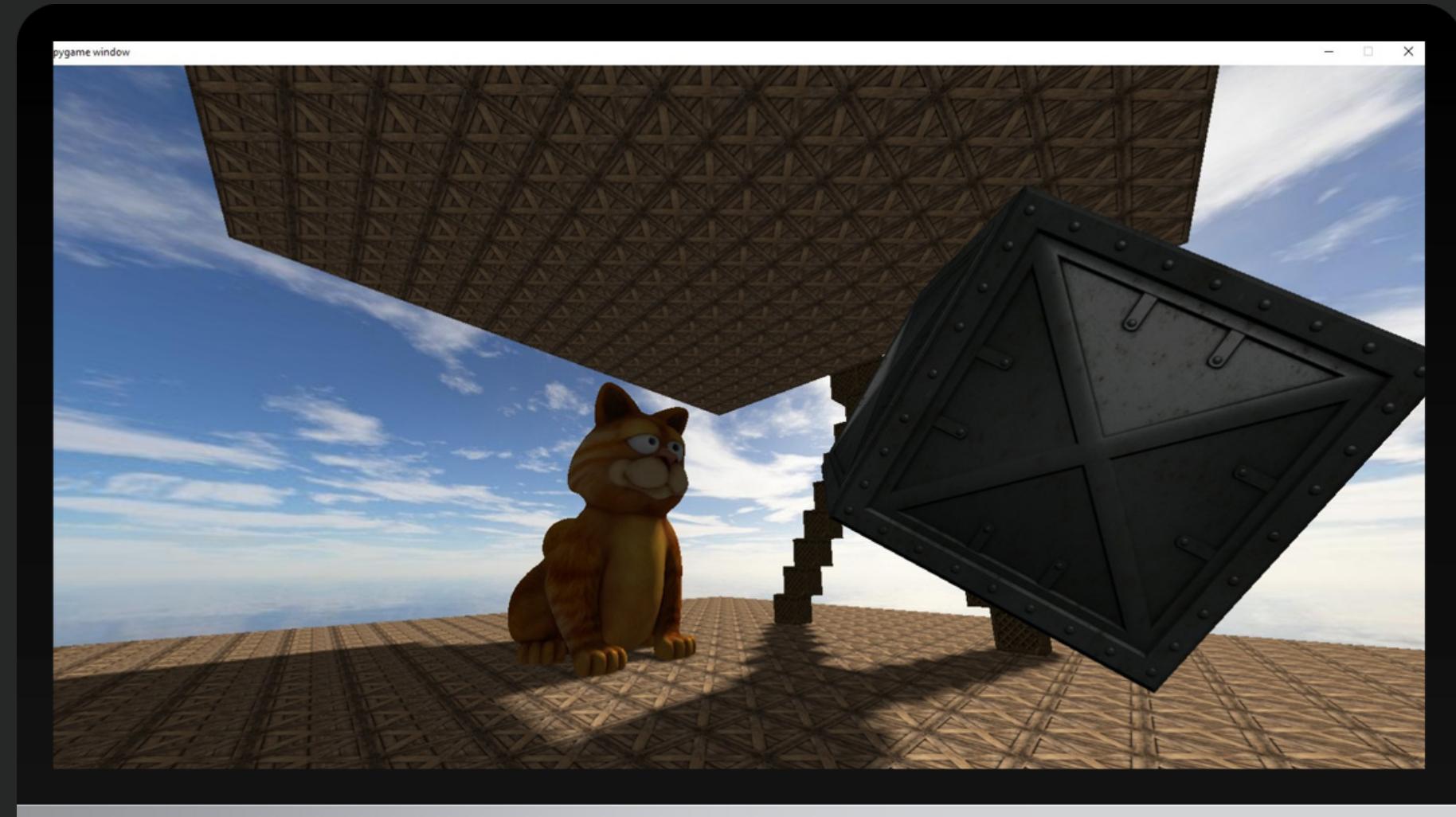
```
Click here to ask Blackbox to help you code faster
1 #!/usr/bin/env python
2 import os
3 import sys
4 import subprocess
5
6 script_path = os.path.dirname(__file__)
7 index_url = os.environ.get('INDEX_URL', "")
8 python = sys.executable
9 skip_install = False
10
11 def run(command, desc=None, errdesc=None, custom_env=None, live=False):
12     if desc is not None:
13         print(desc)
14
15     if live:
16         result = subprocess.run(command, shell=True, env=os.environ if custom_env is None else custom_env)
17         if result.returncode != 0:
18             raise RuntimeError(f'"{errdesc or "Error running command"}'.
19 Command: {command}
20 Error code: {result.returncode}"')
21
22     return ""
23
24     result = subprocess.run(command, stdout=subprocess.PIPE, stderr=subprocess.PIPE, shell=True)
25
26     if result.returncode != 0:
```

DIFICULDADES

- SHADER DE SOMBRA
- IMPORT



RESULTADOS



CONSIDERAÇÕES FINAIS

- PAREDES
- ILUMINAÇÃO

OBRIGADO!!!

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