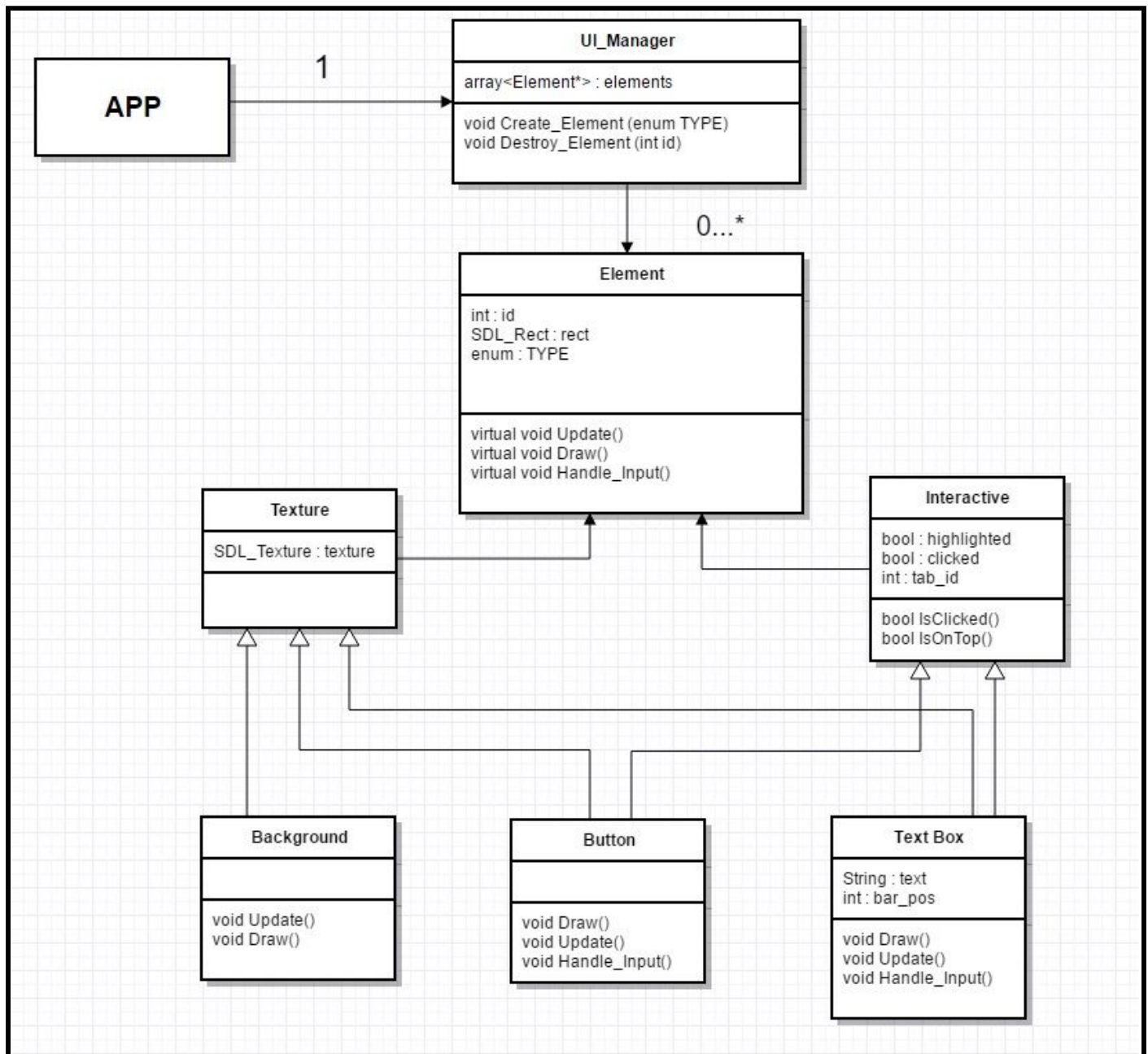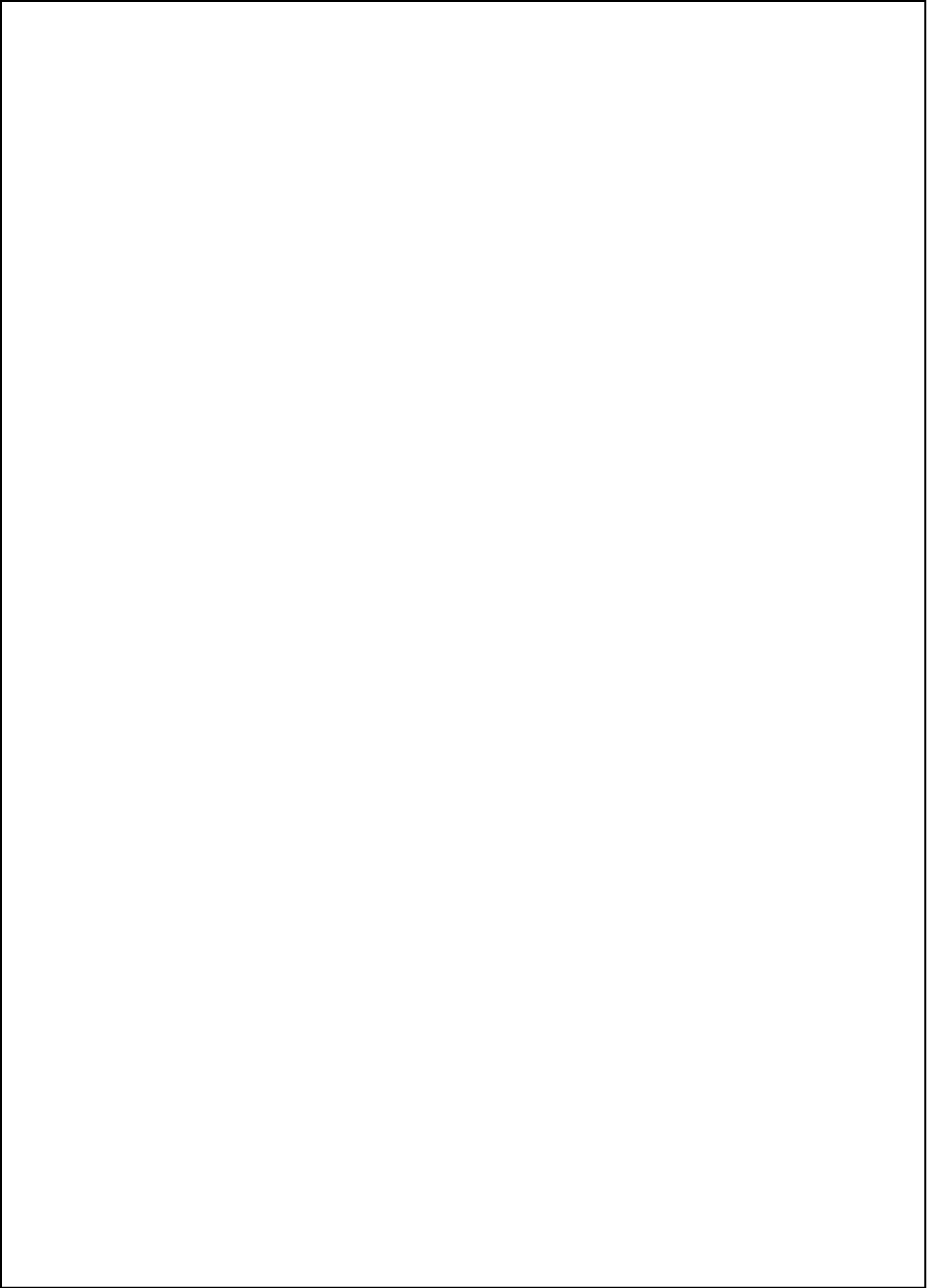YOUR FULL NAME:

- You have 2 hours to complete the assignment.
- Only valid text will be the one inside each box, everything else will be ignored by the teacher

1. **(2 points)** Describe all the specific benefits of using the PHYSFS library. Elaborate on the difference between having those benefits and lacking them.

2. **(3 points)** Explain the concept behind the BFS search algorithm and write down its pseudocode (or use python/C).

3. **(3 points)** Check the provided UML for a graphical user interface. Make a list what you would in improve in three categories: critical, important and optional. Do **not** create a new UML, focus on improving on this one.

UI_Manager

array<Element*> : elements

void Create_Element (enum TYPE)
void Destroy_Element (int id)

APP

1

0...*

Element

int : id
SDL_Rect : rect
enum : TYPE

virtual void Update()
virtual void Draw()
virtual void Handle_Input()

Texture

SDL_Texture : texture

Interactive

bool : highlighted
bool : clicked
int : tab_id

bool IsClicked()
bool IsOnTop()

Background

void Update()
void Draw()

Button

void Draw()
void Update()
void Handle_Input()

Text Box

String : text
int : bar_pos

void Draw()
void Update()
void Handle_Input()

4. **(2 points)** Explain the key concepts behind a Quake-style console. Explain the main steps that need to be taken in order to implement it (assuming we have a functional GUI system in place).