Exercises – Constructors and Destructors

Exercises:

1. Given the following class, which of the following constructor gets called for each of the following code snippets?

class Player

{

public:

Player();

Player(const char \* name);

Player(int a\_max\_ammo, int a\_max\_health);

Player(float x, float y);

Player(Player& a\_player);

float X, Y;

int ammo;

int max\_ammo;

int health;

int max\_health;

char name[64];

};

Player p1(100, 100); //a

Player p2(25.f, 16.f); //b

Player p3(p1); //c

Player p4("Jerry"); //d

Player p5(); //e

1. For each of the following classes, write a destructor that behaves appropriately:

struct Bullet

{

float x, y;

};

class Player

{

public:

Player(int max\_ammo)

{

bullets = new Bullet[max\_ammo];

ammo = 0;

health = 0;

max\_health = 100;

}

~Player(); // implement this

int health;

int max\_health;

int ammo;

int max\_ammo;

Bullet\* bullets;

};

struct Tile

{

int x, y;

int tile\_value;

};

class TileMap

{

public:

TileMap(int a\_width, int a\_height)

{

width = a\_width;

height = a\_height;

tiles = new Tile\*[height];

for (int row\_index = 0; row\_index < height; ++row\_index)

{

tiles[row\_index] = new Tile[width];

}

}

~TileMap(); // implement this

int width;

int height;

Tile\*\* tiles;

};

class Texture

{

public:

Texture(char\* a\_filepath, int a\_width, int a\_height, int a\_bytes\_per\_pixel)

{

int path\_len = strlen(a\_filepath);

filepath = new char[path\_len + 1];

strcpy(filepath, a\_filepath);

width = a\_width;

height = a\_height;

pixel\_data = new char[width \* height \* a\_bytes\_per\_pixel];

}

~Texture(); // implement this

char \* filepath;

char \* pixel\_data;

int width;

int height;

};

1. CHALLENGE: Write a class that for a dynamically created array of ints. Your class should have a constructor that takes in how many elements big the array should be. You should implement a destructor.