CatRinto

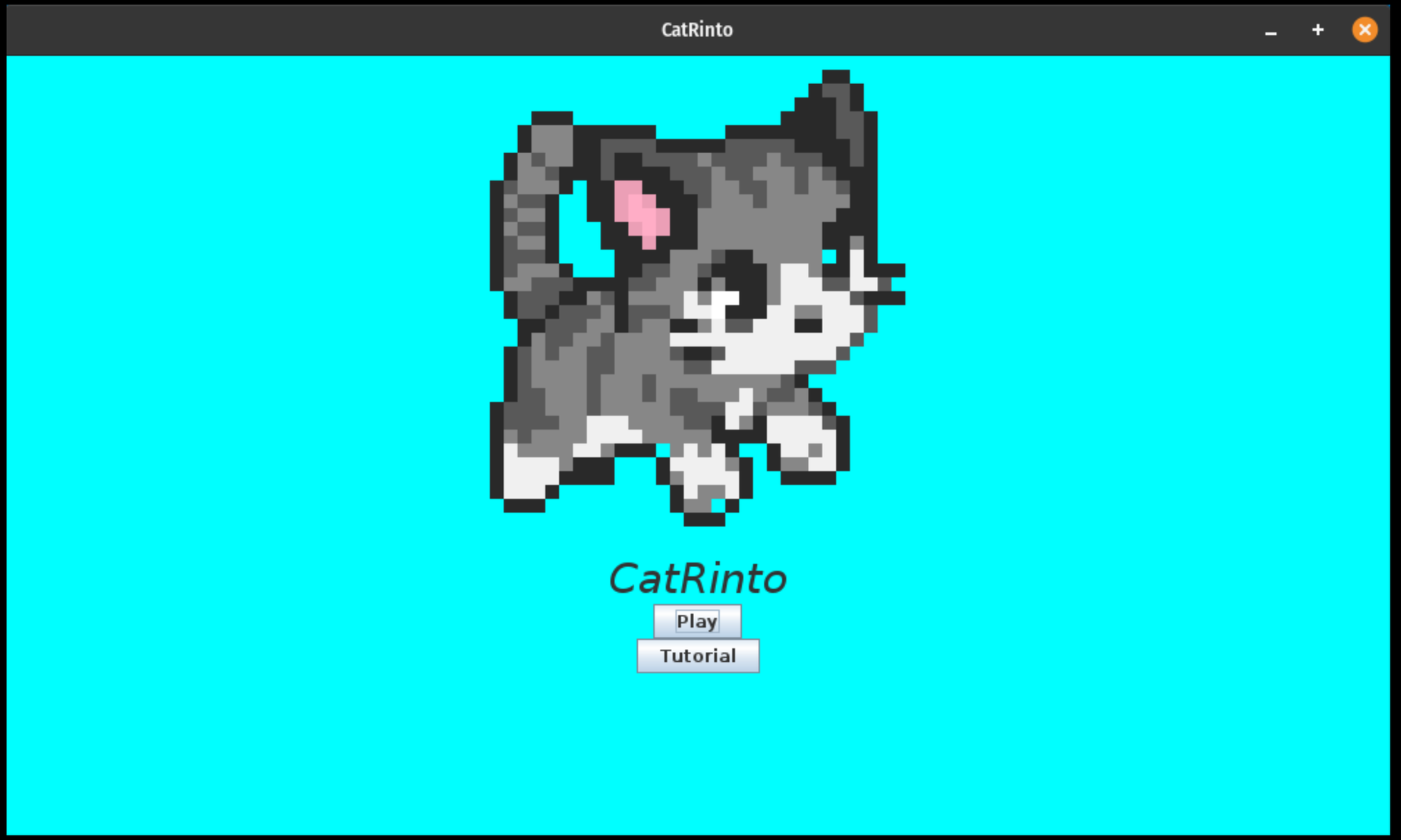
Apresentação final

START MENU

Introdução

A ideia do jogo é o gato completar o labirinto no menor tempo possível, sem se encontrar com os vilões do game, que eram vários cachorros que se moveriam aleatoriamente.

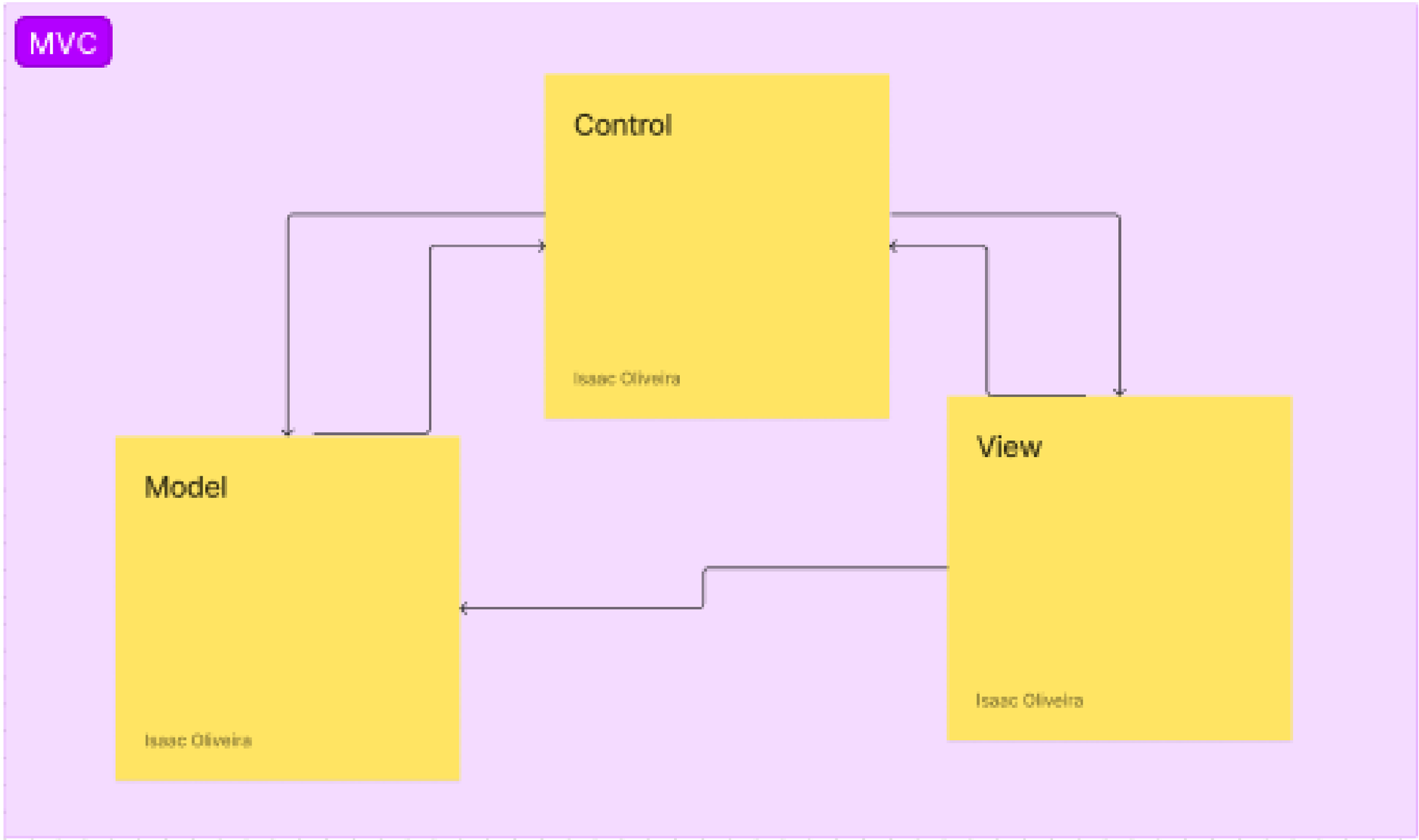
Mecânica



Mecânica

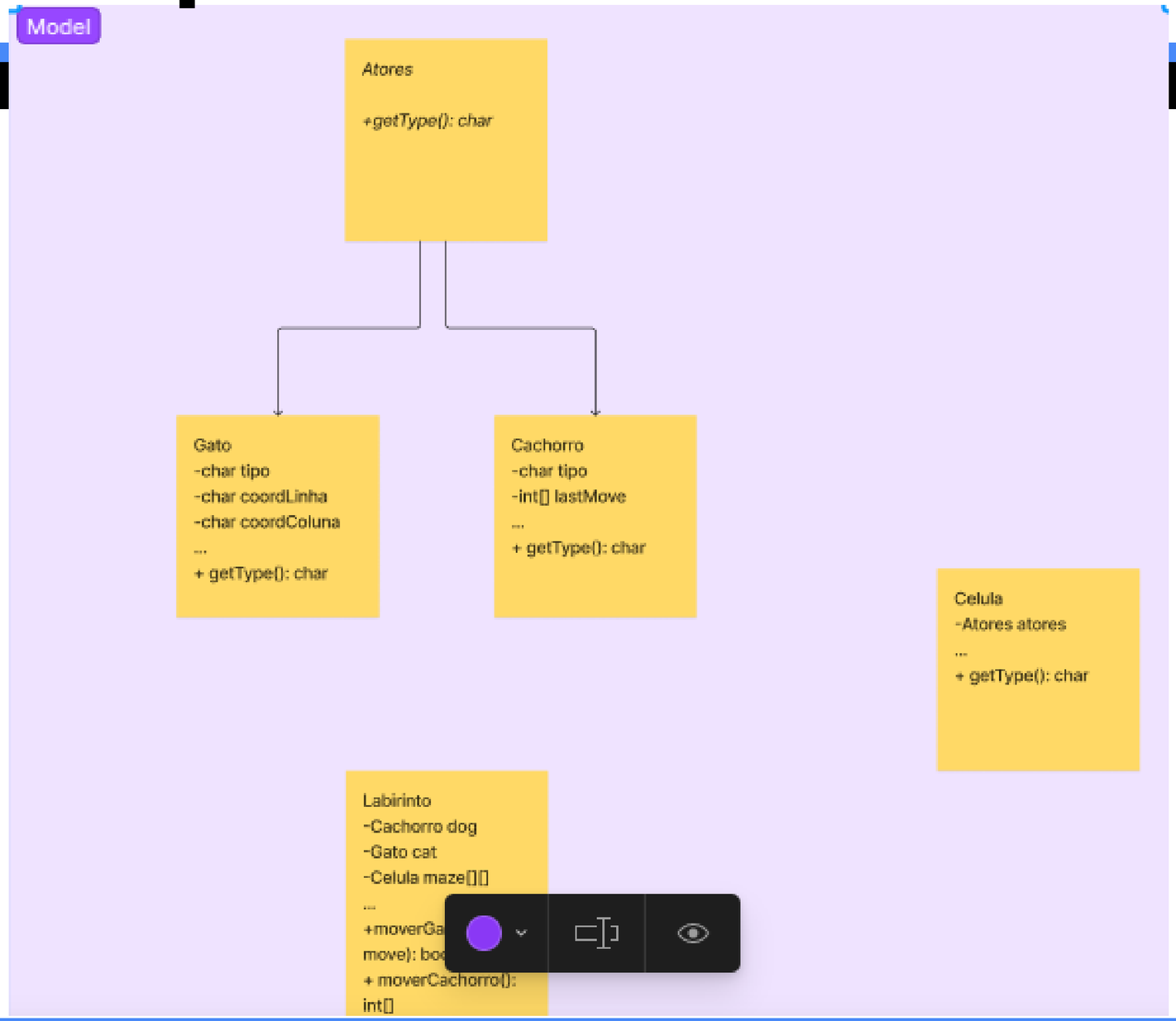
Mecânica

Arquitetura – MVC

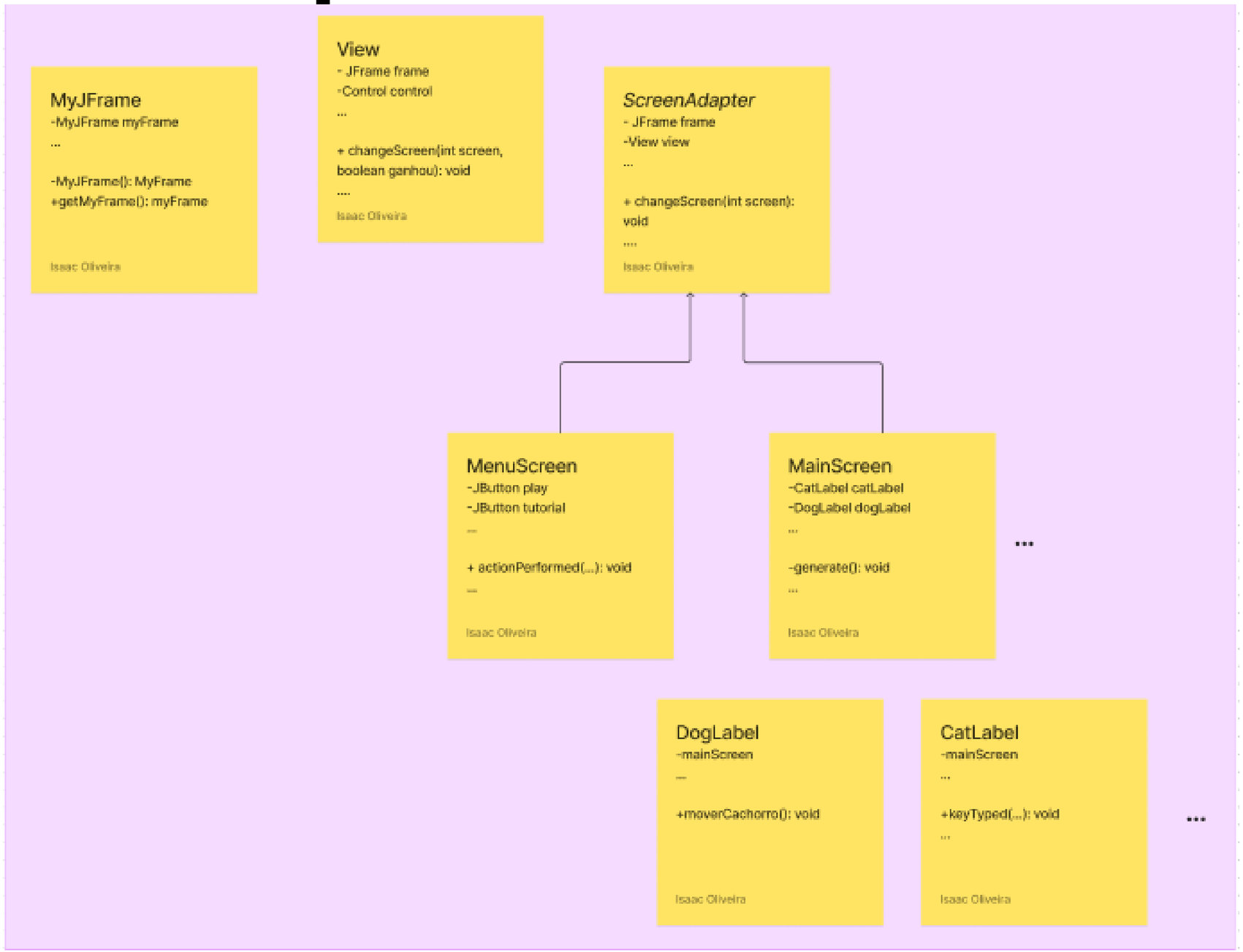


Arquitetura – Control

Arquitetura – Model



Arquitetura – View



Destaques – Singleton

```java
public class View {
    JFrame frame;
    // ...

    public View(Control control) {
        // ...
        frame = MyJFrame.getMyFrame();
        // ...
    }
```

```java
public class MyJFrame extends JFrame{
    private static MyJFrame myFrame;

    private MyJFrame() {
        // ...
    }

    public static MyJFrame getMyFrame() {
        if (myFrame == null)
            myFrame = new MyJFrame();
        return myFrame;
    }
}
```

Destaques – Factory

```java
public abstract class ScreenAdapter {
    private JFrame frame;
    private View view;
    private JPanel panel;

    ScreenAdapter(View view) {
        this.view = view;
        frame = view.getFrame();
        frame.getContentPane().removeAll();
        // ...
        panel = new JPanel();
        // ...
        frame.add(panel);
    }

    protected void changeScreen(int screen) {
        // ...
        view.changeScreen(screen, ganhou: false);
        // ...
    }
```

```java
TutorialScreen(View view) {
    super(view);
    // ...
back = new JButton("Back");
back.addActionListener(this);
```

```java
@Override
public void actionPerformed(ActionEvent e) {
    if (e.getSource() == back) {
        super.changeScreen(screen: 0);
    }
}
```

Destaques – Interfaces

```java
package controller;

public interface IControlModel {
    public boolean isRunning();
}
```

→ Comunicação control-model

Comunicação control-view →

```java
package controller;

import view.View;

public interface IControlView {
    public void setView(View view);
    public Cronometro getTimer();
    public Montador getMontador();
    public void tempoAcabou(boolean ganhou);
    public boolean gatoMorto();
    public boolean moveAttempt(char key);
    public int[] moveAttempt();
}
```

Destaques – Interface gŕafica

```
private void generate() {
    int n = 20;
    char charMap[][] = builder.getLabirinto().getMapaInicial();

    for (int i = 0; i < n; i++)
        for (int j = 0; j < n; j++)
            switch(charMap[i][j]) {
                case 'E':
                    panel.add(new JLabel(new ImageIcon(getClass().getResource("/view/empty.png"))));
                    break;
```

Destaques – Interface gŕafica

```java
public MenuScreen(View view) {
    super(view);

    JPanel panel = super.getPanel();

    logo = new JLabel("CatRinto", new ImageIcon(getClass().getResource("/view/cat.png")), 0);
    logo.setAlignmentX(JLabel.CENTER_ALIGNMENT);
    logo.setAlignmentY(JLabel.CENTER_ALIGNMENT);
    logo.setFont(new Font("Roboto", Font.ITALIC, 30));
    logo.setVerticalTextPosition(JLabel.BOTTOM);
    logo.setHorizontalTextPosition(JLabel.CENTER);
    logo.setIconTextGap(10);

    play = new JButton("Play");
    play.setAlignmentX(JButton.CENTER_ALIGNMENT);
    play.addActionListener(this);
```

Destaques – Model

```
        int[] lastMove = dog.getLastMove();
        int oppositeLastMove[] = {(-lastMove[0]), (-lastMove[1])};
        boolean igual = true;
        if (emptyCells.size() > 1) {
            for (int[] move: emptyCells) {
                igual = true;
                for (int k = 0; k < move.length; k++)
                    if (move[k] != oppositeLastMove[k]) {
                        igual = false;
                        break;
                    }
                if (igual) {
                    emptyCells.remove(move);
                    break;
                }
            }
        }
        return emptyCells;
    }
```

Tratamento de exceções – Gato

```
public boolean moveAttempt(char key) {
    try {
        return model.moverGato(key);
    } catch (IndexOutOfBoundsException erro) {
        return false;
    }
}
```

Tratamento de exceções – Cachorro

```
try {
    if (maze[i - 1][j].getType() != 'W') {
        int[] moveUp = {-1, 0};
        emptyCells.add(moveUp);
    }
} catch (IndexOutOfBoundsException erro) {}
try {
    if (maze[i + 1][j].getType() != 'W') {
        int[] moveDown = {1, 0};
        emptyCells.add(moveDown);
    }
} catch (IndexOutOfBoundsException erro) {}
try {
    if (maze[i][j - 1].getType() != 'W') {
        int[] moveLeft = {0, -1};
        emptyCells.add(moveLeft);
    }
} catch (IndexOutOfBoundsException erro) {}
try {
    if (maze[i][j + 1].getType() != 'W') {
        int[] moveRight = {0, 1};
        emptyCells.add(moveRight);
    }
} catch(IndexOutOfBoundsException erro) {}
```