Family Interaction Map

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Introduction

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Background

This project is a continuation from previous Senior Design students.

Changes that we made:

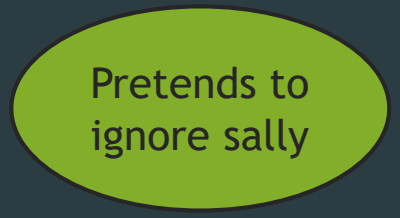
- Moved it’s server location
- Added security features
- Added more functionality
- Applied changes at client’s request

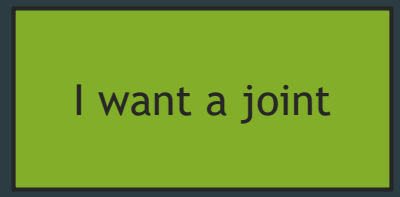
What is a Family Interaction Map?

Logical representations of mapping actions, feelings, and thoughts within families to aid in documenting behavior.

A map is divided into two sectors by the relapse line

- Abstinence sector
- Using-intoxicants sector

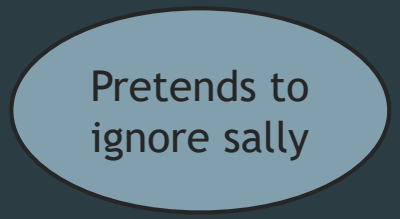


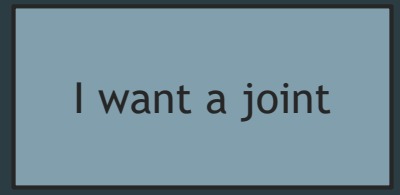


Actions

Feelings

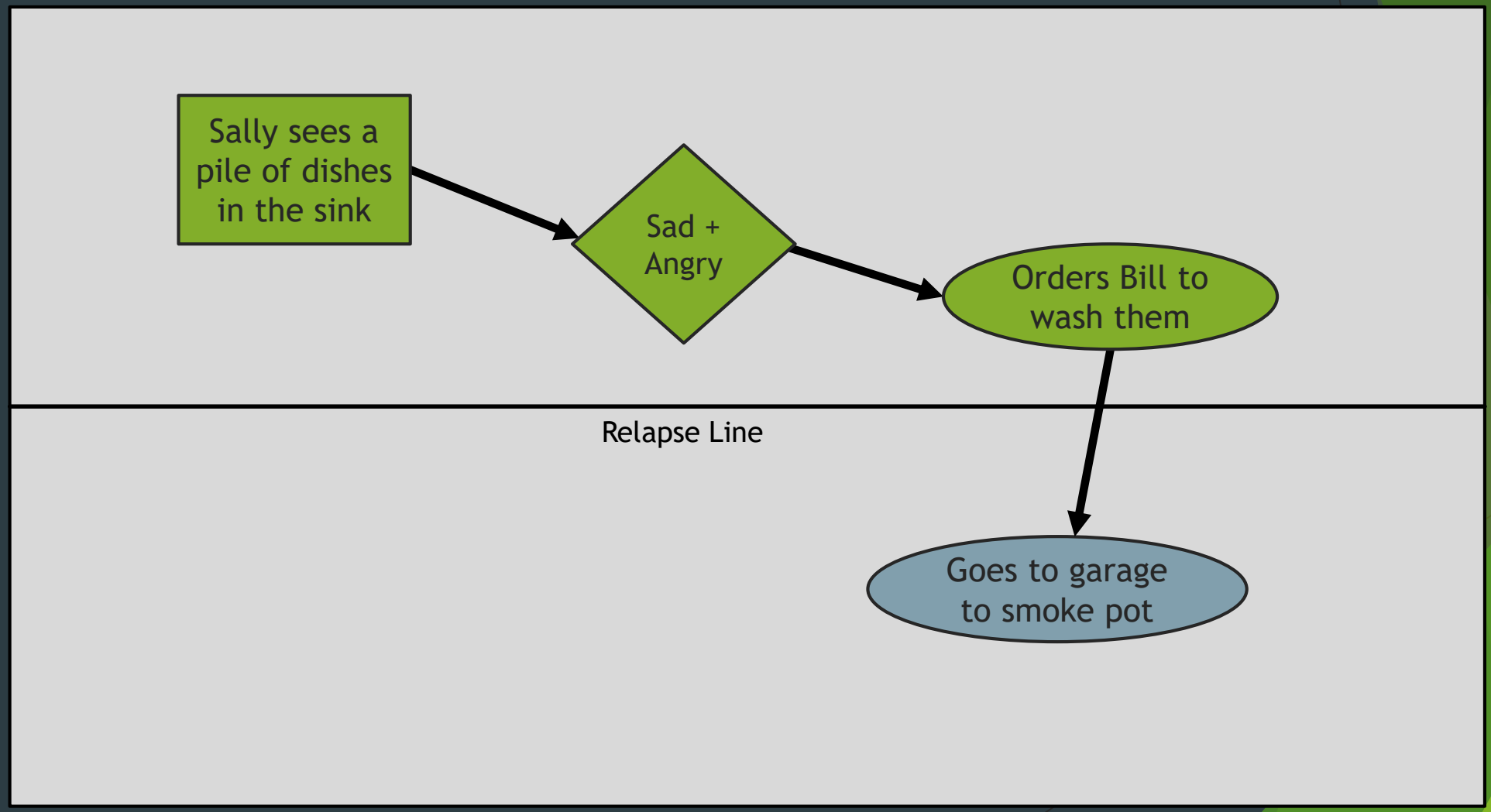
Thoughts



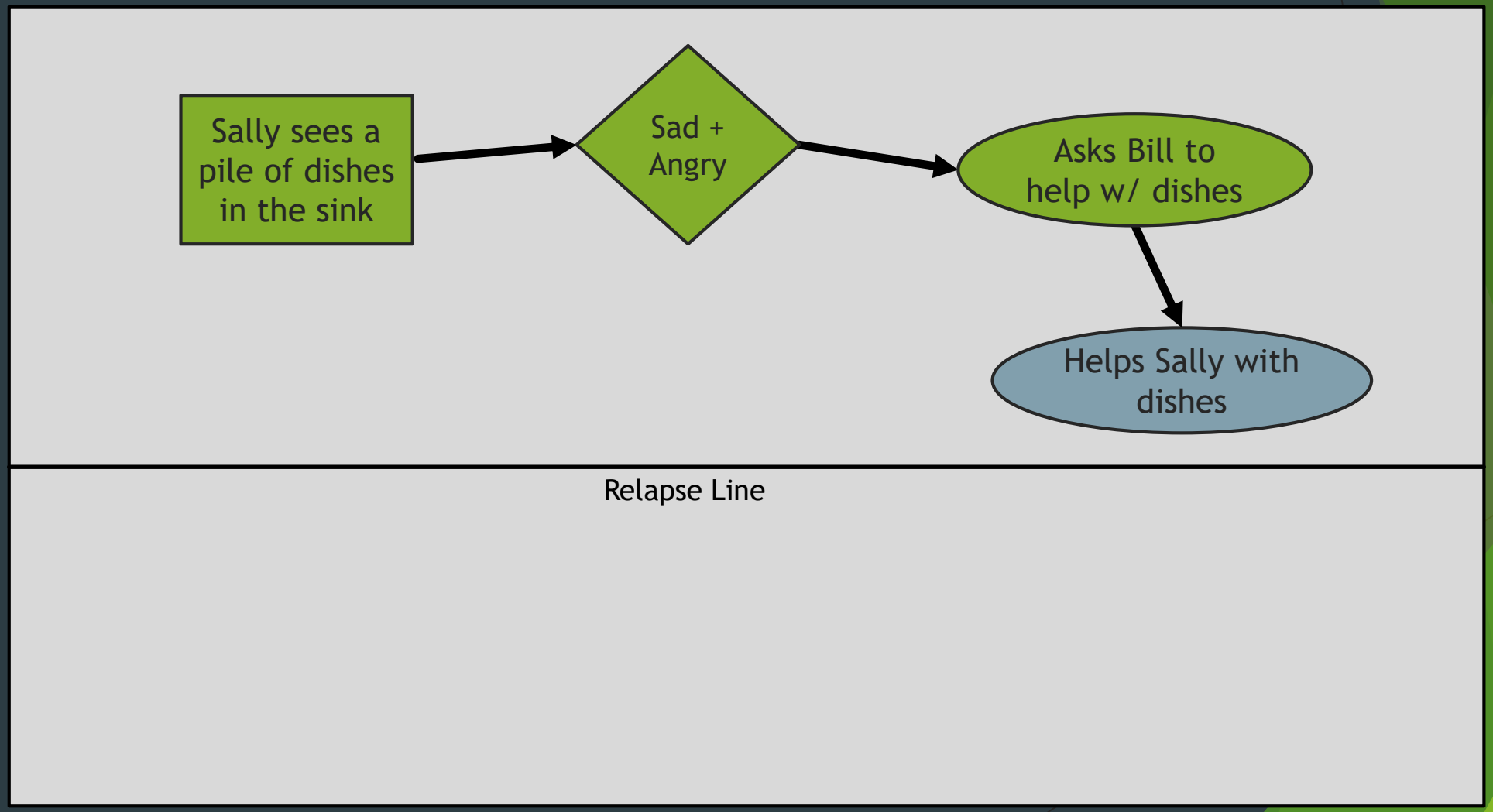


Colors representing different people

Simple Family Map Example



Simple Family Map Example



Client

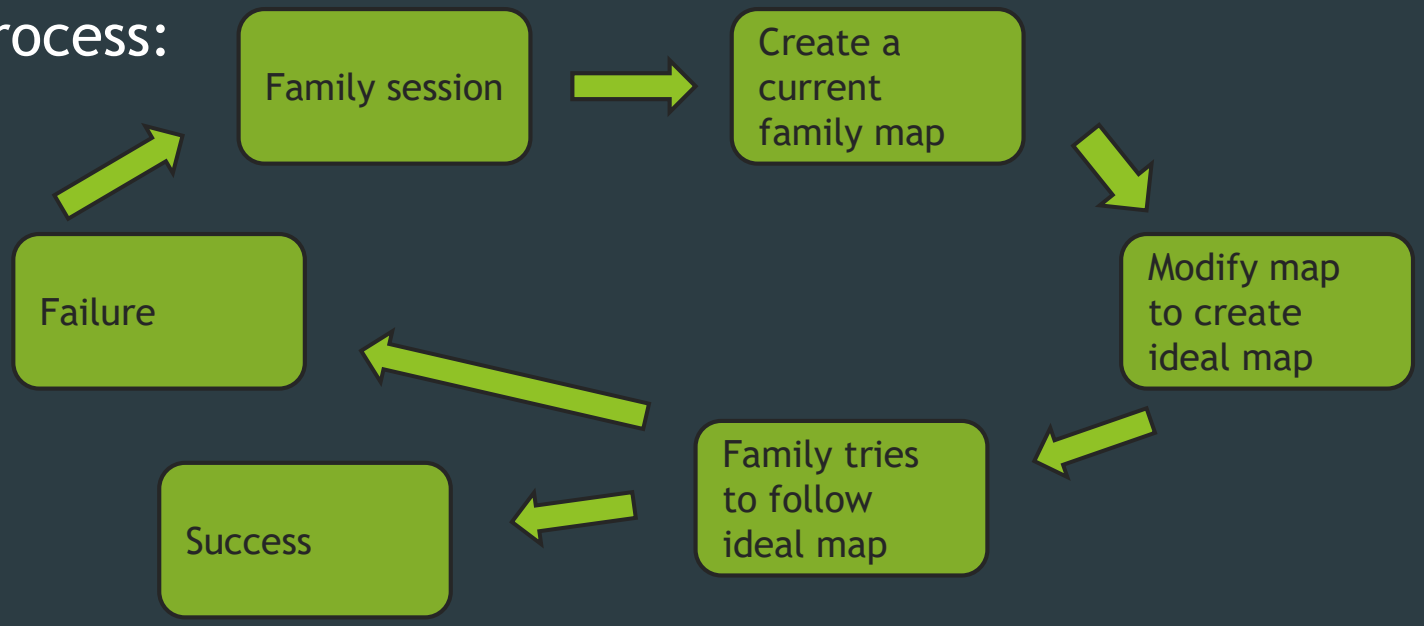
Michael R. Liepman, MD, DLFAPA, FASAM
Professor of Psychiatry and Director of Psychiatry Research

Western Michigan University Homer Stryker MD School of Medicine

- Raised in Kalamazoo
- Educated at the University of Michigan in Ann Arbor
- Pursued an academic career in Addiction Psychiatry

Problem History

- Designed in the 1980's
- Used sticky notes and/or whiteboard
- The Process:



- Not Portable – patients couldn't get a copy, had to be recreated each meeting

The Solution

Develop a web application that can

- Provide a secure user-friendly interface for our client
- Be used from anywhere that has a computer with internet access
- Print hard copies of maps
- Save and Load maps for reoccurring sessions

Starting Point

Ruby on Rails

- Functional Log In
- Account Creation Page
- Family Map Editor with Encryption

Hosted on a Western Virtual Server

Technology

The Family Interaction Map is an interactive web-based application.

Technologies used:

- HTML/CSS
- Javascript
- Ruby on Rails
- Bootstrap
- JointJS
- CryptoJS
- Git

Design Decisions

1. Web Hosting Services
2. Database
3. Web Server

Web Hosting – Amazon Web Services

What Amazon offered:

- Free 12 month evaluation
- Full control with a root account
- Easily transferrable
- Scalable

Database – MySQL

Database	User Management	Features	Community Support	Performance
MySQL	✓	✓	✓	✓
SQLite	✗	✗	✓	✓
PostgreSQL	✓	✓	✗	✗

Web Server - Apache

Why we chose Apache:

- Free and open-source
- Available for many operating systems
- Virtual hosting

Let’s Encrypt

New free Certificate Authority

- Trusted by all major browsers
- Provides encryption and Host verification

Browser Side

JavaScript

- JointJS provides a canvas and tools for creating and manipulating shapes
- JavaScript allows for easy storage of the map via JSON

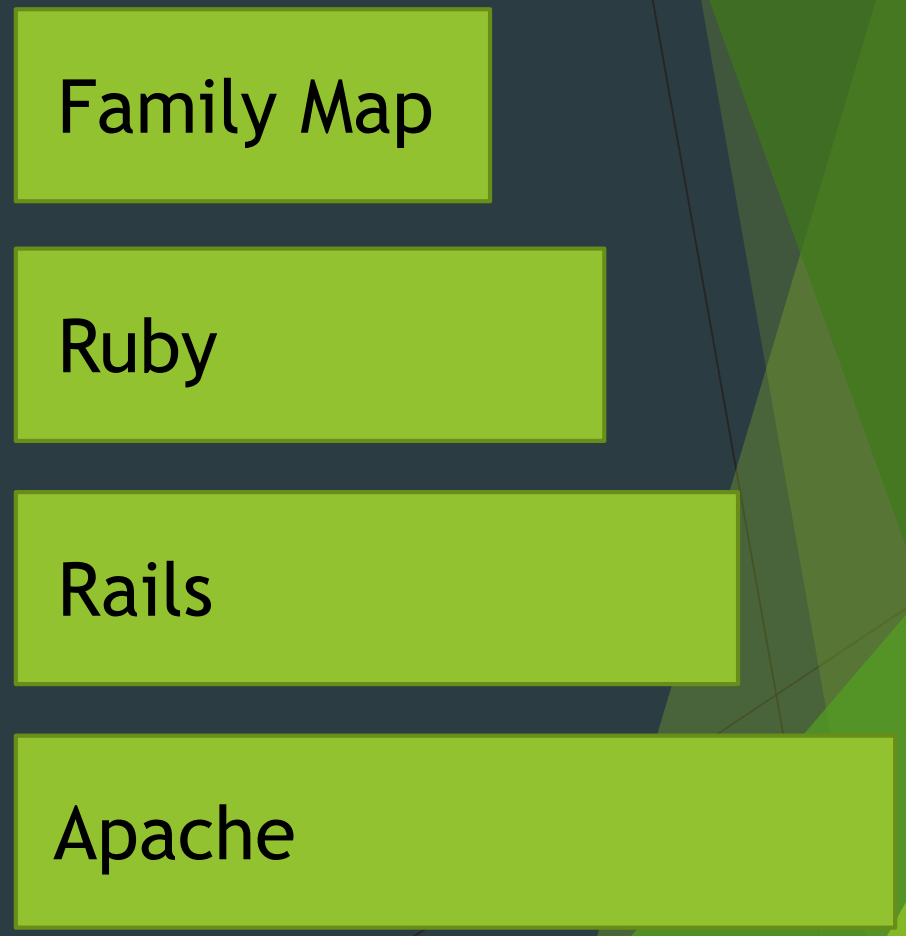
Web Design

- Bootstrap Framework neatly organizes the HTML, CSS and JavaScript
- Features a simple yet elegant design

Server Side

Ruby on Rails

- Enforces a model-view-controller framework
- Seamlessly handles transactions with MySQL



Compatibility

Designed to be compatible with most modern browsers.

- Google Chrome
- Mozilla Firefox
- Safari
- Opera

Family Interaction Map 1.1

An Interactive Behavioural Mapping System

Load Family Map

Click here to go to previously saved family maps. Remember to log in first.

New Family Map

Click here to start work on a new family map. Remember to log in first.

Log In

Already have an account? Click above to log in and start making maps.

About

Go here for more information regarding family maps, including an FAQ section and more details.

Log Out

Testing

Exhaustive testing has been done to ensure performance, security and client satisfaction. Rails also has built in testing functions.

Areas of focus include:

- Browser compatibility
- JavaScript saving and loading
- JSON Encryption/Decryption
- Usability

Maintenance

The web application was developed with extreme programming disciplines.

- A complete maintenance document will be provided for future developers
- Automation will allow for easy installation
- Version control under GIT will aid in future development

Security

As this application will be used by physicians for their patients, security is a major focus. Under HIPAA guidelines, all patient information is encrypted.

Security measure taken include:

1. User Authentication
2. Session Encryption
3. Data Encryption

Summary

- A family interaction map is used for behavioral analysis
- Client desired a secure and efficient solution
- Developed as a web application in Ruby on Rails

Questions?

Thank You!