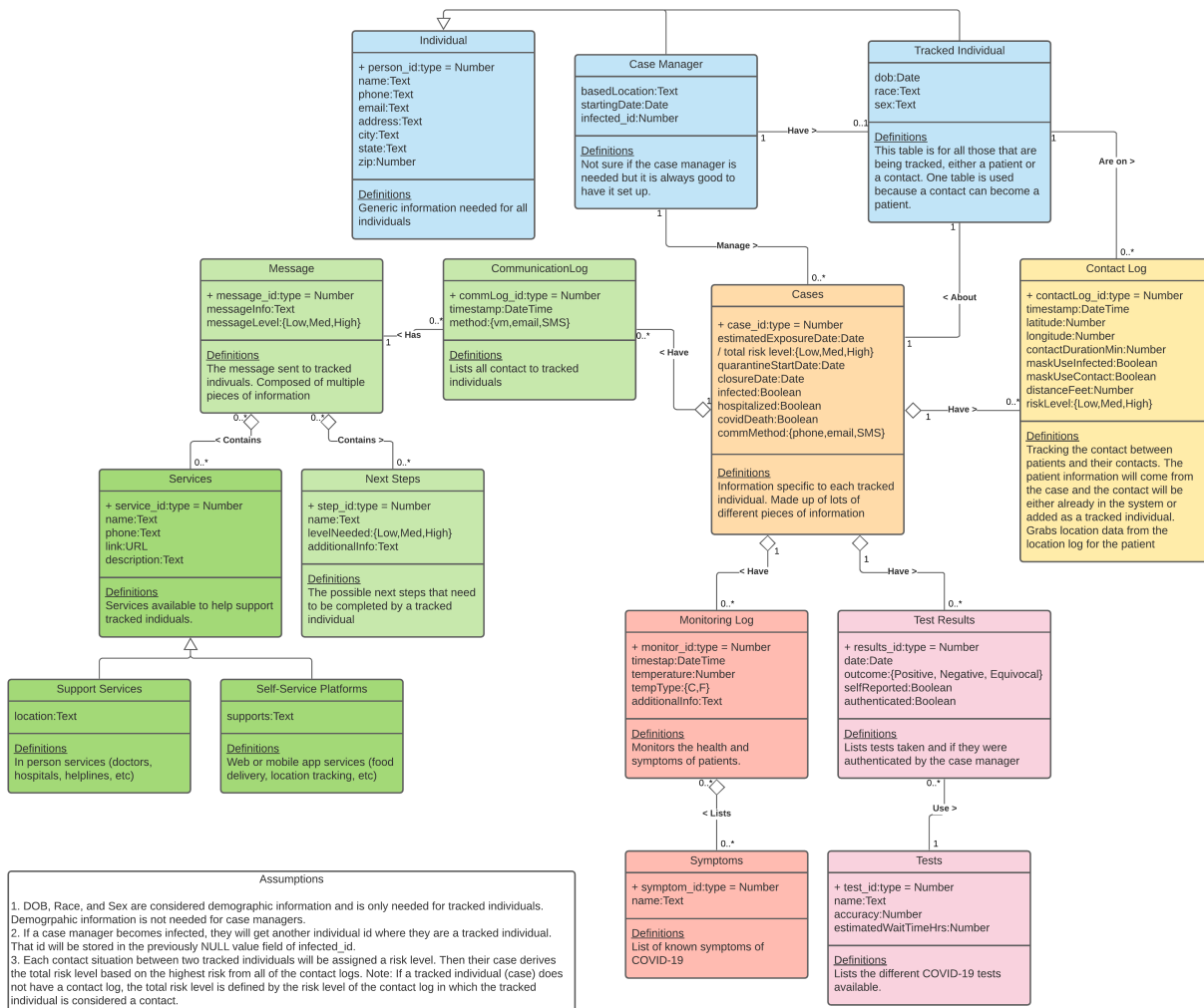# CS5200 Fall 2020: Practicum 1

Chandra Davis, Evan Douglass
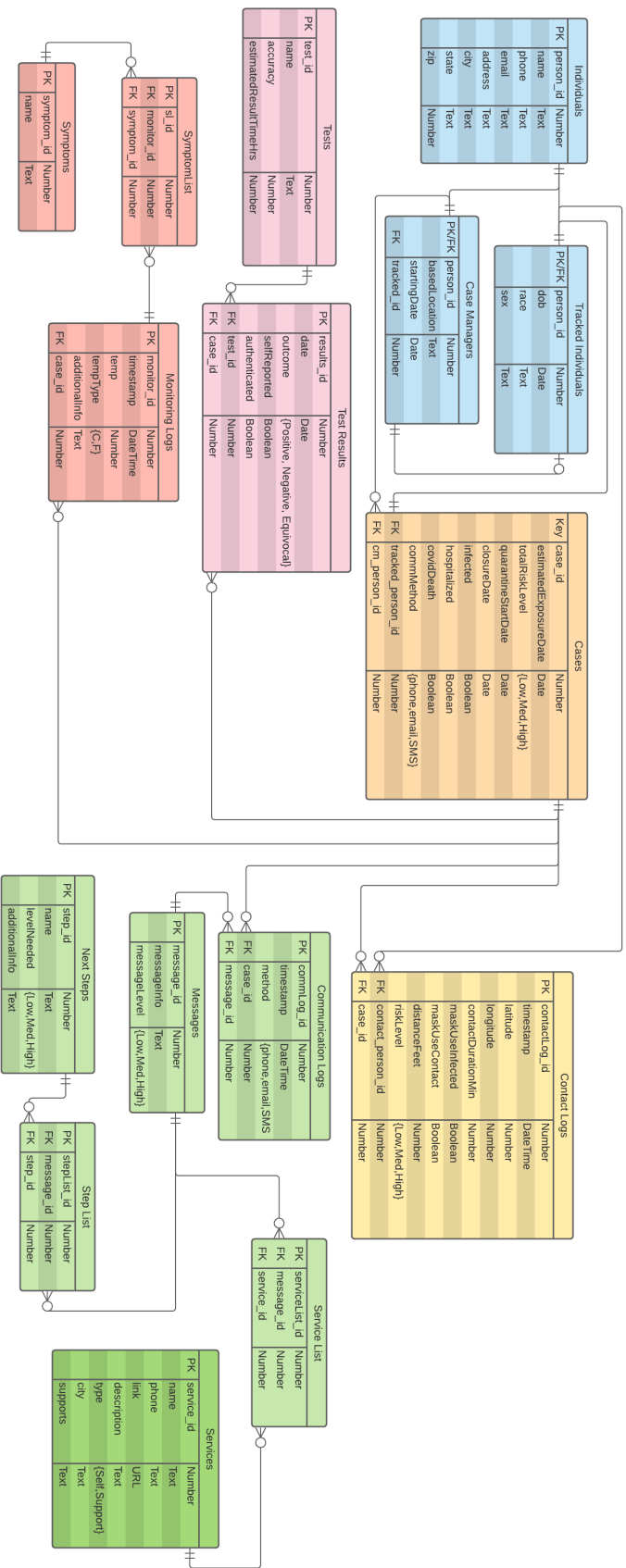
Conceptual Model: UML

Click here to view the conceptual model in Lucid Chart.

Individual

+ person_id:type = Number
name:Text
phone:Text
email:Text
address:Text
city:Text
state:Text
zip:Number

Definitions
Generic information needed for all individuals

Case Manager

basedLocation:Text
startingDate:Date
infected_id:Number

Definitions
Not sure if the case manager is needed but it is always good to have it set up.

Tracked Individual

dob:Date
race:Text
sex:Text

Definitions
This table is for all those that are being tracked, either a patient or a contact. One table is used because a contact can become a patient.

Message

+ message_id:type = Number
messageInfo:Text
messageLevel:{Low,Med,High}

Definitions
The message sent to tracked indivuals. Composed of multiple pieces of information

CommunicationLog

+ commLog_id:type = Number
timestamp:DateTime
method:{vm,email,SMS}

Definitions
Lists all contact to tracked individuals

Cases

+ case_id:type = Number
estimatedExposureDate:Date
/ total risk level:{Low,Med,High}
quarantineStartDate:Date
closureDate:Date
infected:Boolean
hospitalized:Boolean
covidDeath:Boolean
commMethod:{phone,email,SMS}

Definitions
Information specific to each tracked individual. Made up of lots of different pieces of information

Contact Log

+ contactLog_id:type = Number
timestamp:DateTime
latitude:Number
longitude:Number
contactDurationMin:Number
maskUseInfected:Boolean
maskUseContact:Boolean
distanceFeet:Number
riskLevel:{Low,Med,High}

Definitions
Tracking the contact between patients and their contacts. The patient information will come from the case and the contact will be either already in the system or added as a tracked individual. Grabs location data from the location log for the patient

Services

+ service_id:type = Number
name:Text
phone:Text
link:URL
description:Text

Definitions
Services available to help support tracked indivduals.

Next Steps

+ step_id:type = Number
name:Text
levelNeeded:{Low,Med,High}
additionalInfo:Text

Definitions
The possible next steps that need to be completed by a tracked individual

Monitoring Log

+ monitor_id:type = Number
timestap:DateTime
temperature:Number
tempType:{C,F}
additionalInfo:Text

Definitions
Monitors the health and symptoms of patients.

Test Results

+ results_id:type = Number
date:Date
outcome:{Positive, Negative, Equivocal}
selfReported:Boolean
authenticated:Boolean

Definitions
Lists tests taken and if they were authenticated by the case manager

Support Services

location:Text

Definitions
In person services (doctors, hospitals, helplines, etc)

Self-Service Platforms

supports:Text

Definitions
Web or mobile app services (food delivery, location tracking, etc)

Symptoms

+ symptom_id:type = Number
name:Text

Definitions
List of known symptoms of COVID-19

Tests

+ test_id:type = Number
name:Text
accuracy:Number
estimatedWaitTimeHrs:Number

Definitions
Lists the different COVID-19 tests available.

Assumptions

1. DOB, Race, and Sex are considered demographic information and is only needed for tracked individuals. Demogrpahic information is not needed for case managers.
2. If a case manager becomes infected, they will get another individual id where they are a tracked individual. That id will be stored in the previously NULL value field of infected_id.
3. Each contact situation between two tracked individuals will be assigned a risk level. Then their case derives the total risk level based on the highest risk from all of the contact logs. Note: If a tracked individual (case) does not have a contact log, the total risk level is defined by the risk level of the contact log in which the tracked individual is considered a contact.

Logical Model: ERD

Click here to view the logical model in Lucid Chart.

Individuals
PK	person_id	Number
	name	Text
	phone	Text
	email	Text
	address	Text
	city	Text
	state	Text
	zip	Number

Tracked Individuals
PK/FK	person_id	Number
	dob	Date
	race	Date
	sex	Text

Case Managers
PK/FK	person_id	Number
FK	tracked_id	Number
	basedLocation	Text
	startingDate	Date

Tests
PK	test_id	Number
	name	Text
	accuracy	Number
	estimatedResultTimeHrs	Number

Symptoms
PK	symptom_id	Number
	name	Text

SymptomList
PK	sl_id	Number
FK	monitor_id	Number
FK	symptom_id	Number

Monitoring Logs
PK	monitor_id	Number
	timestamp	DateTime
	temp	Number
	tempType	(C,F)
	additionalInfo	Text
FK	case_id	Number

Test Results
PK	results_id	Number
	date	Date
	outcome	{Positive, Negative, Equivocal}
	selfReported	Boolean
	authenticated	Boolean
FK	test_id	Number
FK	case_id	Number

Cases
Key	case_id	Number
	estimatedExposureDate	Date
	totalRiskLevel	{Low,Med,High}
	quarantineStartDate	Date
	closureDate	Date
	infected	Boolean
	hospitalized	Boolean
	covidDeath	Boolean
	commMethod	{phone,email,SMS}
FK	tracked_person_id	Number
FK	cm_person_id	Number

Contact Logs
PK	contactLog_id	Number
	timestamp	DateTime
	latitude	Number
	longitude	Number
	contactDurationMin	Number
	maskUseInfected	Boolean
	maskUseContact	Boolean
	distanceFeet	Number
	riskLevel	{Low,Med,High}
FK	contact_person_id	Number
FK	case_id	Number

Communication Logs
PK	commLog_id	Number
	timestamp	DateTime
	method	{phone,email,SMS}
FK	case_id	Number
FK	message_id	Number

Messages
PK	message_id	Number
	messageInfo	Text
	messageLevel	{Low,Med,High}

Next Steps
PK	step_id	Number
	name	Text
	levelNeeded	{Low,Med,High}
	additionalInfo	Text

Step List
PK	stepList_id	Number
FK	message_id	Number
FK	step_id	Number

Service List
PK	serviceList_id	Number
FK	message_id	Number
FK	service_id	Number

Services
PK	service_id	Number
	name	Text
	phone	Text
	link	URL
	description	Text
	type	Text
	city	Text
	supports	{Self,Support}

Schema

Click here to view the schema in Google Docs.

Individuals(person_id: Number, name: Text, phone: Text, email: Text, address: Text, city: Text, state: Text, zip: Number)

TrackedIndividuals(*person_id: Number*, dob: Date, race: Text, sex: Text)

CaseManagers(*person_id: Number*, basedCity: Text, basedState: Text, startingDate: Date, *infected_id: Number*)

Tests(test_id: Number, name: Text, accuracy: Number, estimatedResultTimeHrs: Number)

TestResults(results_id: Number, date: Date, outcome: {Positive, Negative, Equivocal}, selfReported: Boolean, authenticated: Boolean, *test_id: Number*, *case_id: Number*)

MonitoringLogs(monitor_id: Number, timestamp: DateTime, temp: Number, tempType: {C, F}, additionalInfo: Text, *case_id: Number*)

SymptomList(sl_id: Number, *monitor_id: Number, symptom_id: Number*)

Symptoms(symptom_id: Number, name: Text)

Cases(case_id: Number, estimatedExposureDate: Date, totalRiskLevel: {Low, Med, High}, quarantineStartDate: Date, closureDate: Date, infected: Boolean, hospitalized: Boolean, covidDeath: Boolean, commMethod: {phone, email, SMS}, *cm_person_id: Number, infected_person_id: Number*)

ContactLogs(contactLog_id: Number, timestamp: DateTime, latitude: Number, longitude: Number, contactDurationMin: Number, maskUseInfected: Boolean, maskUseContact: Boolean, distanceFeet: Number, riskLevel: {Low, Med, High}, *contact_person_id: Number, case_id: Number*)

CommunicationLogs(commLog_id: Number, timestamp: DateTime, method: {phone, email, SMS}, *case_id: Number, message_id: Number*)

Messages(message_id: Number, messageLevel: {Low, Med, High}, messageInfo: Text)

StepList(stepList_id: Number, *message_id: Number, step_id: Number*)

NextSteps(step_id: Number, name: Text, levelNeeded: {Low, Med, High}, additionalInfo: Text)

ServiceList(serviceList_id: Number, *message_id: Number, service_id: Number*)

Services(service_id: Number, name: Text, phone: Text, link: Text, description: Text, type: {Self, Support}, city: Text, supports: Text)

Creating Database Tables

Populating The Database

Queries