

# FYP 1740: Integrated Sales Representative Management System With Task Distribution And Route Planning Optimization

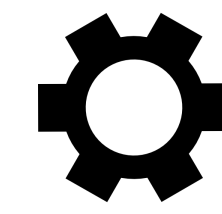
## Abstract

Sales reps often have to schedule visits to customers such that many customers as possible are visited. However, many do not consider the value of the schedule that they have planned. This leads to suboptimal routes. This project aims to solve this problem by designing an application that will help sales reps manage their tasks and schedules as well as optimize their schedules to prioritize value generation. The application is a simple Flask web app that also integrates an optimization algorithm known as variable neighborhood search (VNS).

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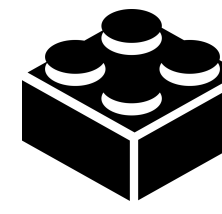
## Design

## Testing



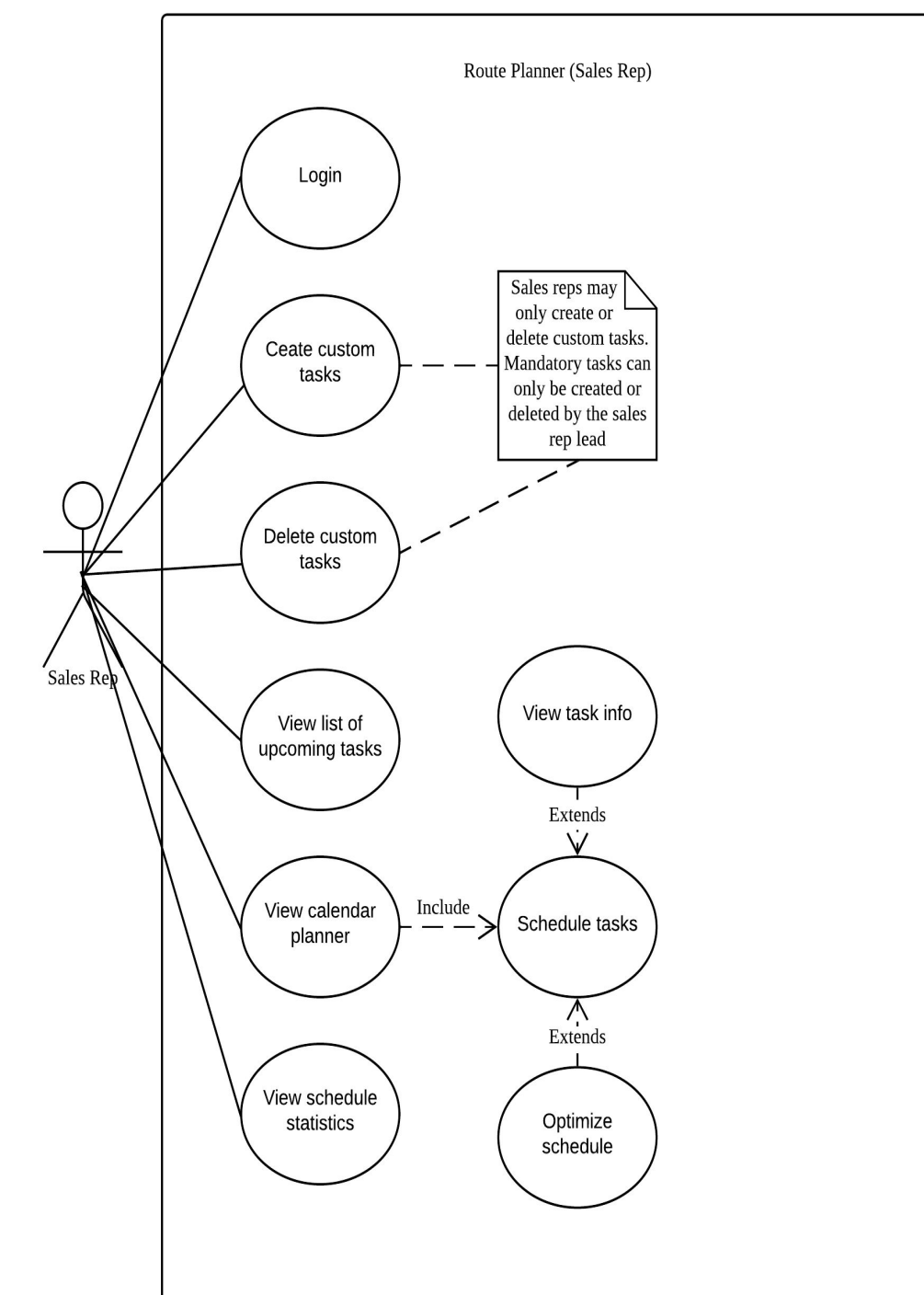
### Functional Testing

Ensure that all functionalities are working as intended



### Unit Testing

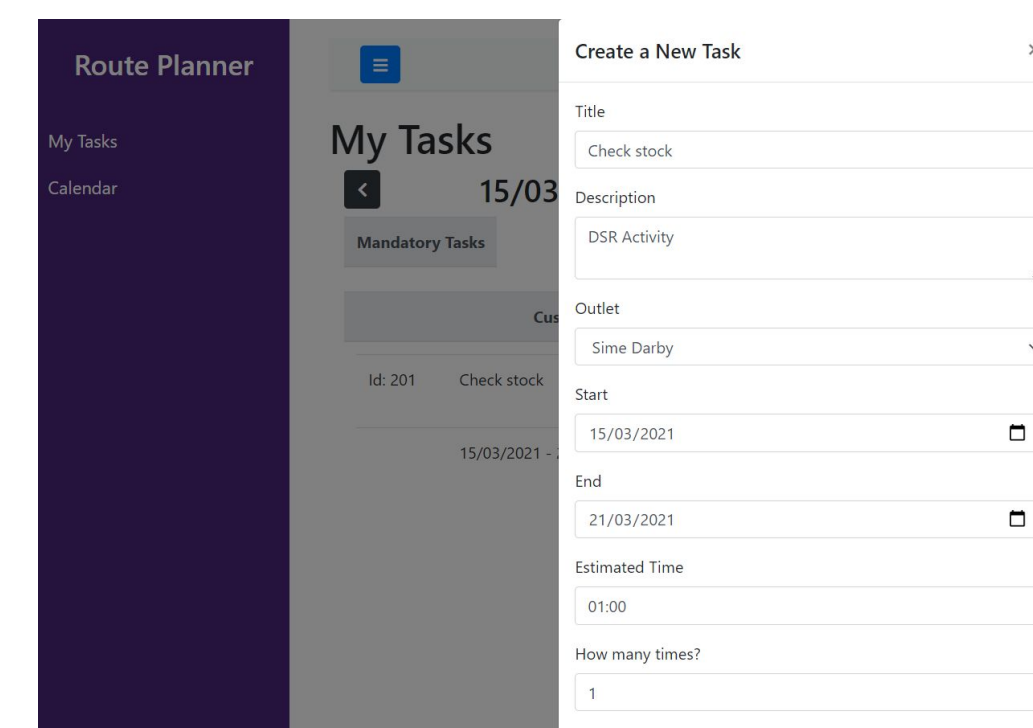
Test on a fundamental level that the building blocks are stable



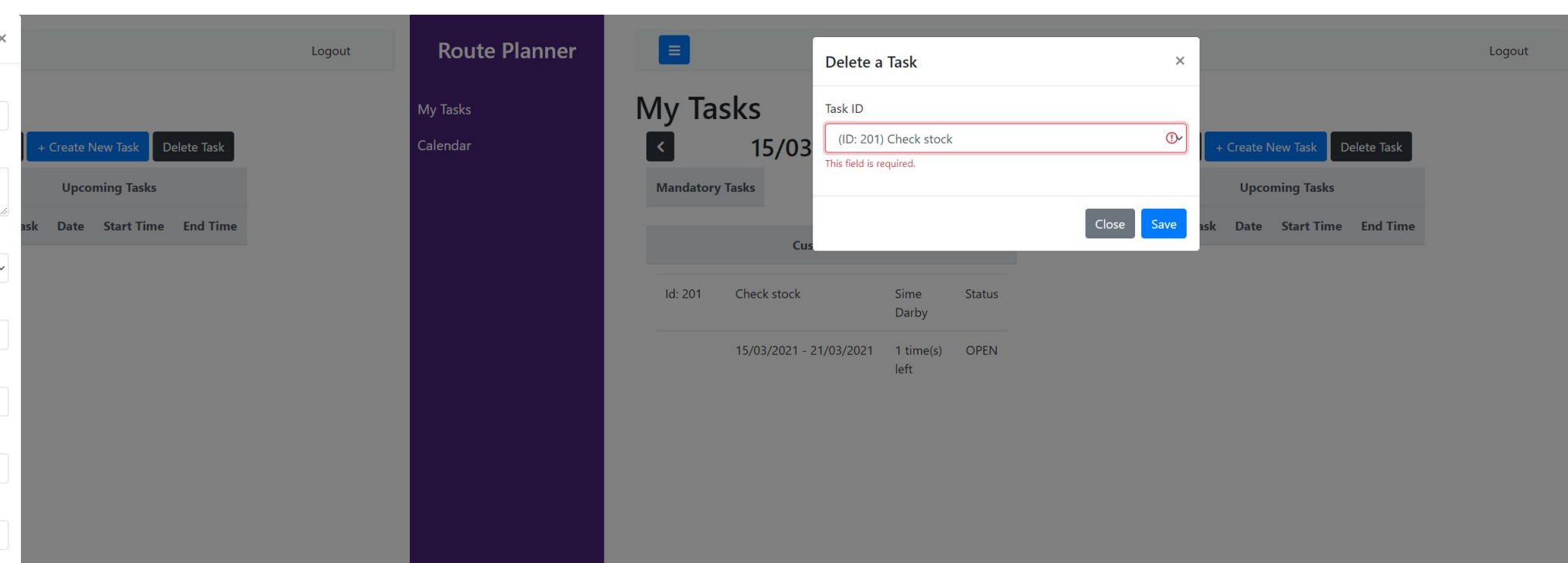
## Implementation



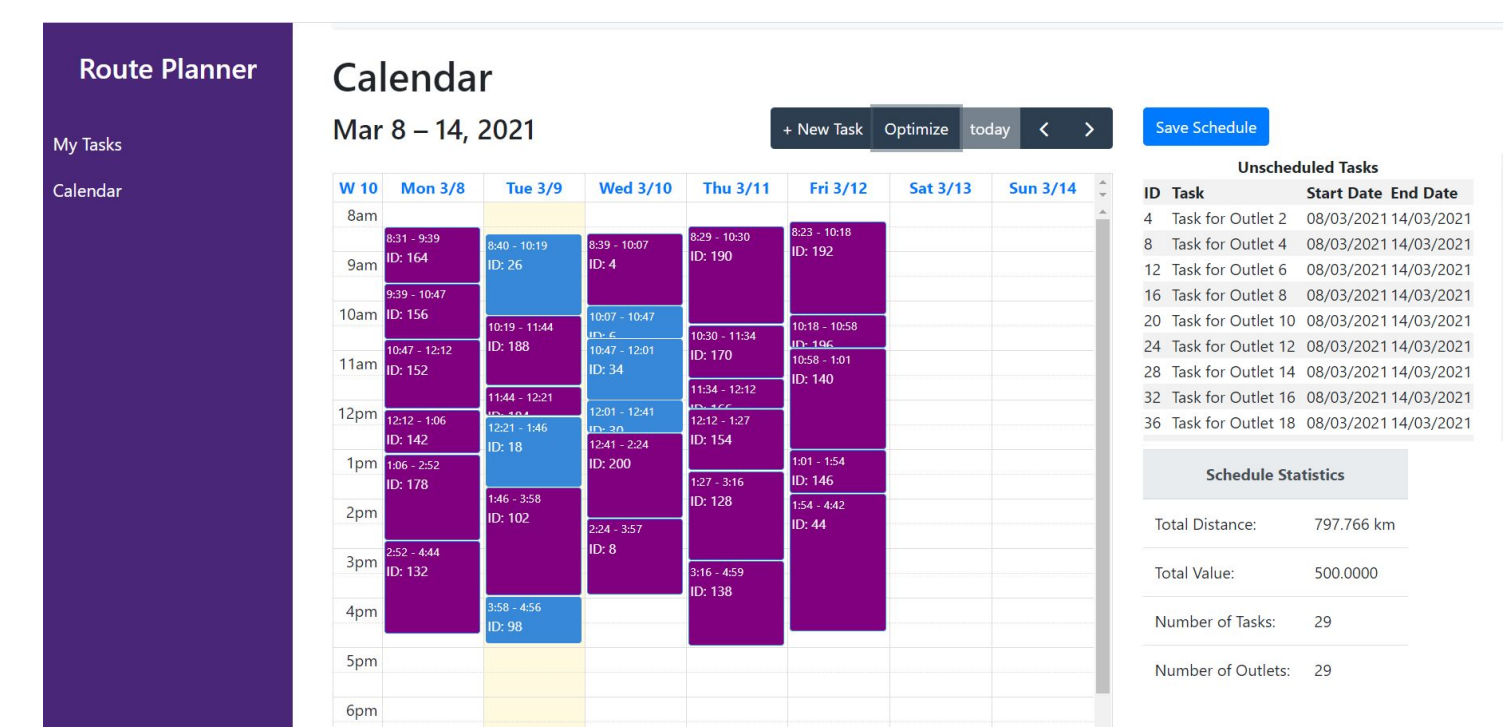
### Creating Custom Tasks



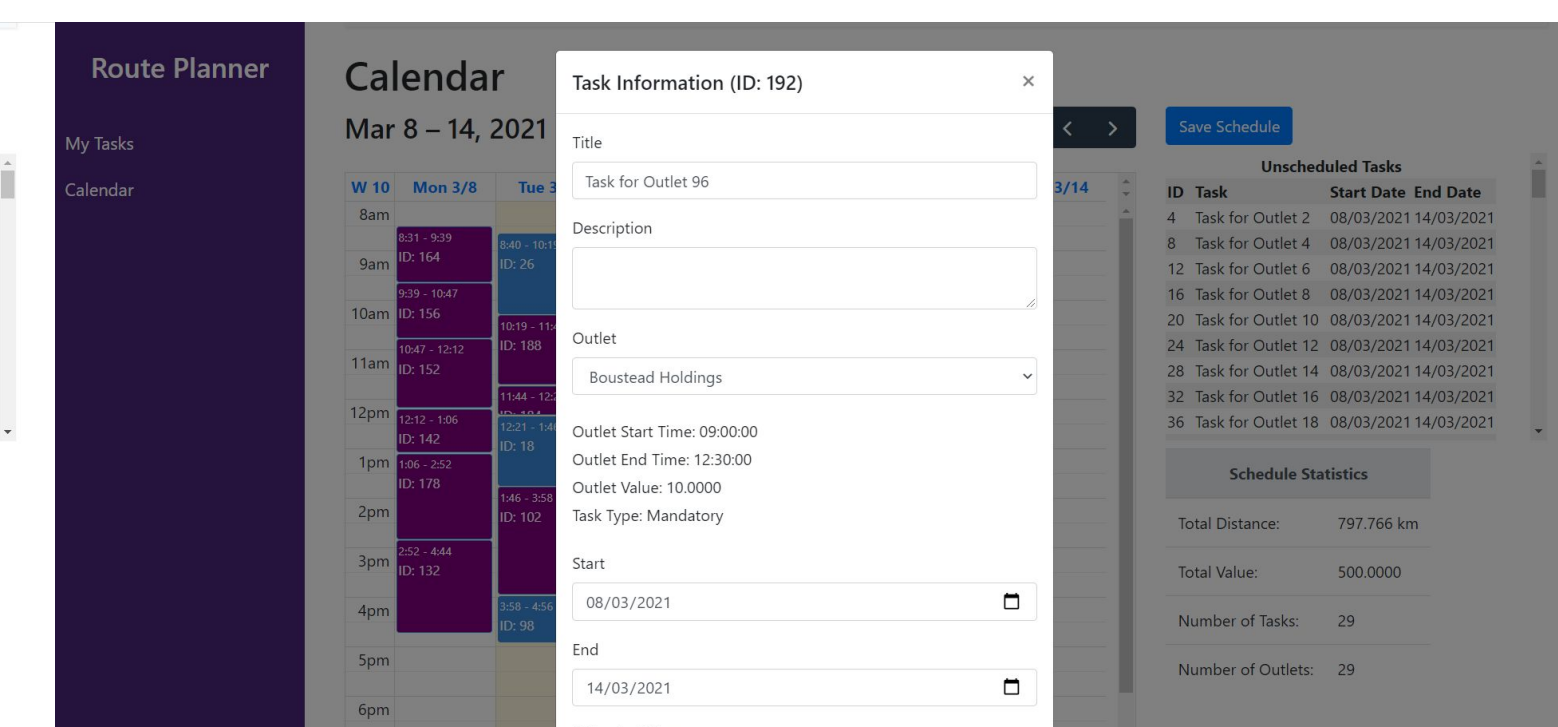
### Deleting Custom Tasks



### Optimizing Schedule



### Viewing Task Info

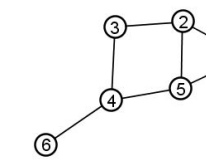


## Methodology

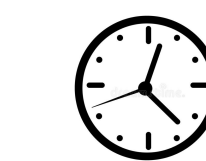
### Compare Constructive Heuristic and VNS in terms of:



#### Solution value



#### Solution distance

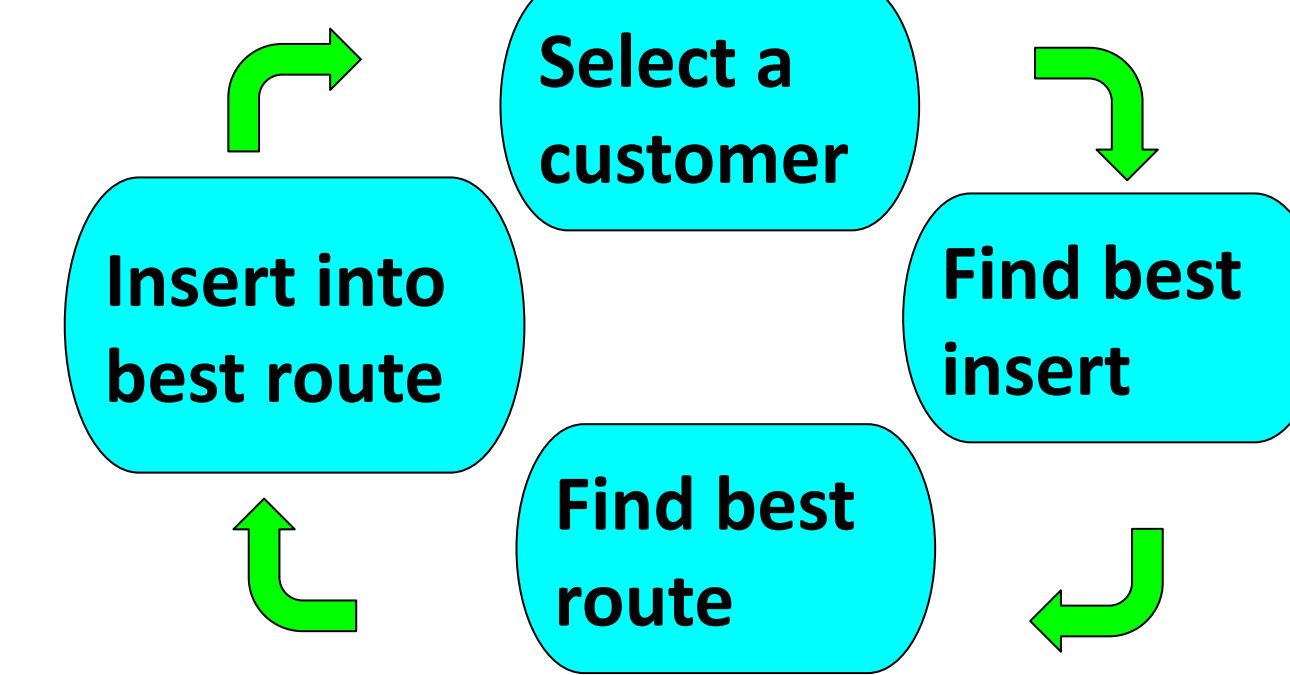


#### Solution time

CUST SERVICE	NO. TIME	XCOORD.	YCOORD.	DEMAND	READY	TIME	DUE	DATE
0	40	50	0	0	480	0		
1	45	68	10	0	120	90		
2	45	70	30	0	120	90		
3	42	66	10	0	120	90		
4	42	68	10	282	342	90		
5	42	65	10	0	120	90		
6	40	69	20	241	301	90		
7	40	66	20	0	120	90		

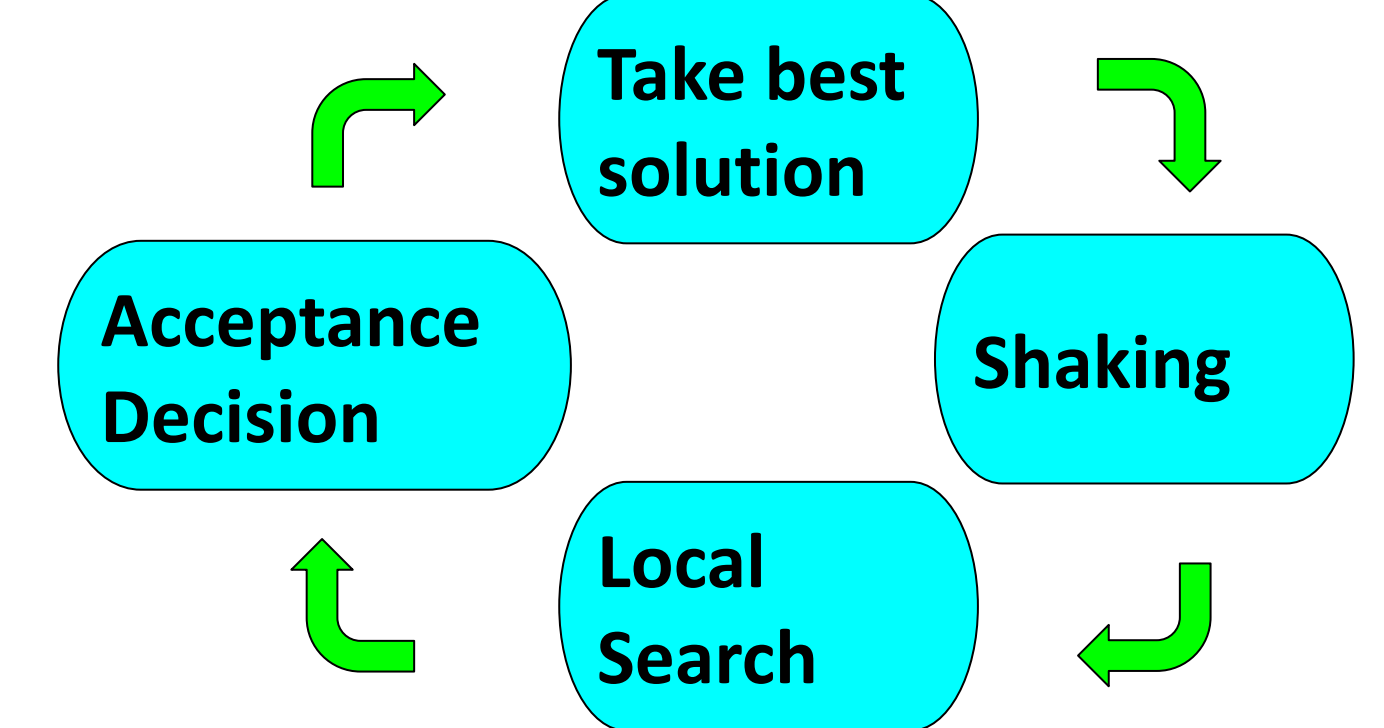
## Implementation

### Constructive Heuristic



## Evaluation

### VNS



## Problem Statement

How to visit all outlets such that:

1. Outlet availability times are respected?
2. Maximum value is generated?
3. Maximum number of tasks are completed?
4. Visits are within our own working hours?

## Objectives

1. Task management and scheduling tool for sales reps
2. Study route optimization algorithms

## Background Study

### Overview of B2B Sales Reps

Their Roles and Responsibilities in Modern B2B

#### Roles

#### Responsibilities

Salesman

Sell Products

Customer's Main Point of Contact with Company

Build and Maintain Relationship with Customers (Weber, 2019)

Assist Customer's Purchasing Decisions (Gomez, Toman & Adamson, 2017)

DSR Activities (Kum Wah, personal communications, August 19, 2020, JJ Suppliers, personal communications, August 27, 2020)

## Conclusion

- ✓ VNS is better in terms of solution value and distance.
- ✓ Created a web app for sales rep task management and scheduling
- ✓ Integrated optimization module into app

