

# City of Regina Project

— Park Maintenance and Citizen Satisfaction

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# **Executive Overview**

# 01

## Executive Overview

- Due to the large amount of park maintenance requests, the city of Regina cannot manually review all of the requests. Our client wants to find a process to deal with the massive amount of park visitor comments, and understand and prioritize critical issues.
- The final goal of our client is to increase overall citizen satisfaction with the park maintenance service, in hope of reducing the number of citizen complaints.



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# Critical Issues 02

# Problem Statement

## **1. Data Processing Challenge:**

—The current dataset size is too large for manual processing, leading to inefficiencies in cleaning, understanding, and aggregating park visitor comments. Our clients require a more streamlined and automated approach that can manage this data effectively.

## **2. Unstructured Location Data:**

—The dataset contains unstructured and obfuscated information, particularly in the columns related to park locations. This makes it difficult for our clients to accurately associate visitor comments with the corresponding park locations, hindering effective issue resolution.

## **3. Issue Prioritization:**

—Our clients need a system that generates a prioritized list of issues based on the frequency of citizen complaints, allowing them to focus on and allocate resources to address the most pressing concerns at specific park locations.



## Problem Statement

### **4. Urgent Issue Identification and Maintenance Constraints (In progress) :**

—Our clients require strategies to identify and prioritize urgent issues that warrant immediate attention, while taking into account existing park maintenance constraints and resource limitations. This will ensure that the most significant problems are addressed promptly and efficiently.

### **5. Citizen Satisfaction and Complaint Reduction (In progress) :**

—The city of Regina aims to enhance citizen satisfaction and minimize the number of citizen complaints. Our clients need guidance on addressing critical issues and developing strategies to achieve these goals.

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# Analysis 03

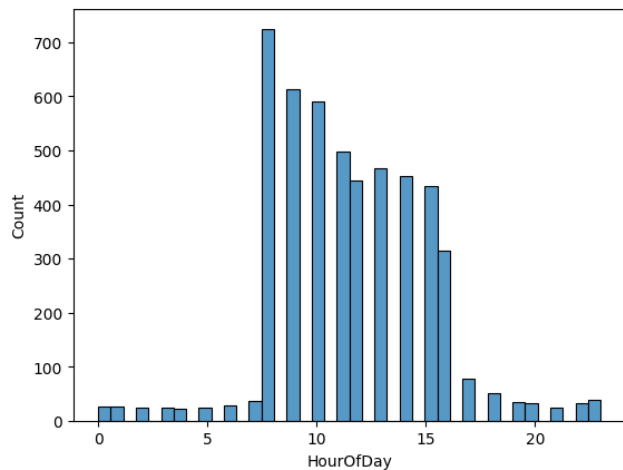


## Data Description

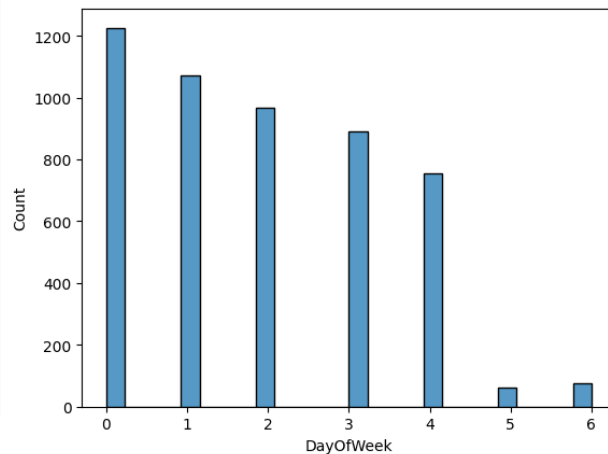
Our original data contains 5043 rows of park visitor comments and 14 columns with information that categorizes and explains the comments. Despite the data having columns of Street # and Street Name, the comments are not directly associated with the park location they are leaving a comment for, as some of the Street # and Street Name information could be the commenters' home address instead of the park address.

	SR Number	Created Date & Time	Request Type	Sub Request Type	Branch Name	Branch Code	Street #	Pre Dir	Street Name	Suffix	Postal Code	Customer Comments	Comments Date & Time	Total Calls
0	2041958	1/1/2021 20:43	Parks Inquiry	PathMntnc	Parks Maintenance	PPPM	1912	E	7TH	AVE		I just want to thank you for the fine job of c...	1/1/2021 20:45	1
1	2041967	1/1/2021 21:16	Parks Inquiry	PathMntnc	Parks Maintenance	PPPM	7955		BARLEY	CRES		Will there be some sidewalk snow removal done ...	1/1/2021 21:18	1
2	2041968	1/1/2021 21:20	Parks Inquiry	PathMntnc	Parks Maintenance	PPPM	6056		WASCANA	CRT		Just a quick note to thank the city for cleani...	1/1/2021 21:22	1
3	2042004	1/2/2021 23:10	Parks Inquiry	ParksMnt	Parks Maintenance	PPPM	2531	E	MARGARET	PL	S4V- 1Z4	reference # 1919405692More than two years ago,...	1/2/2021 23:12	1
4	2042084	1/4/2021 9:13	Parks Inquiry	PathMntnc	Parks Maintenance	PPPM	1803	E	ASSINIBOINE	AVE		Caller states the pathway in Selinger Park nee...	1/4/2021 9:14	1

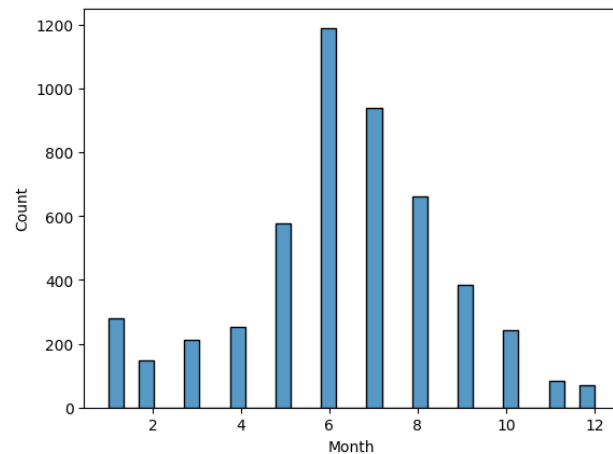
# Data Visualization



Number of Complaints by Hour of Day



Number of Complaints by Day of the Week



Number of Complaints by Month

## Location Description

The location data contains 306 parks and their address. By using google geocoding api of park address, we get the latitude and longitude data columns.

	NAME	ADDRESS	CLASS	ZONE	City	Country	Latitude	Longitude
0	EMPRESS PARK	1 EMPRESS DR	B	WEST	Regina	Canada	50.448840	-104.651720
1	BIRCHWOOD PARK	10 NORRIS RD	C	SOUTH	Regina	Canada	50.400610	-104.602920
2	PROCTER PARK	100 PROCTER PL	B	SOUTH	Regina	Canada	50.417059	-104.614614
3	LITZENBERGER PARK	100 RINK AVE	B	WEST	Regina	Canada	50.489170	-104.649970
4	JUNIPER PARK	1000 STOCKTON ST	B	WEST	Regina	Canada	50.495567	-104.645439

## Location Mapping

Building upon the previous geocoding API mapping, we have calculated the latitude and longitude coordinates for each park on the list. Ultimately, we have identified the specific park location associated with each comment by assigning the nearest park to the corresponding comment coordinates.

	SR Number	Created Date & Time	Request Type	Sub Request Type	Branch Name	Branch Code	Street #	Pre Dir	Street Name	Suffix	...	Latitude_x	Longitude_x	closest_park	min_distance	NAME	ADDRESS
0	2041958	1/1/21 20:43	Parks Inquiry	PathMntnc	Parks Maintenance	PPPM	1912	E	7TH	AVE	...	50.458287	-104.608698	STEWART RUSSELL PARK	0.000000e+00	STEWART RUSSELL PARK	1912 E 7TH AVE
1	2041967	1/1/21 21:16	Parks Inquiry	PathMntnc	Parks Maintenance	PPPM	7955		BARLEY	CRES	...	50.453850	-104.695380	SEREDA PARK	0.000000e+00	SEREDA PARK	7955 BARLEY CRES
2	2041968	1/1/21 21:20	Parks Inquiry	PathMntnc	Parks Maintenance	PPPM	6056		WASCANA	CRT	...	50.417650	-104.534880	WASCANA RIDGE PARK	3.424866e-01	WASCANA RIDGE PARK	WASCANA RIDGE & WASCANA CIRCLE
3	2042004	1/2/21 23:10	Parks Inquiry	ParksMnt	Parks Maintenance	PPPM	2531	E	MARGARET	PL	...	50.427339	-104.545038	PHILLIP PARK	9.659821e-02	PHILLIP PARK	3256 MARGARET RD
4	2042084	1/4/21 9:13	Parks Inquiry	PathMntnc	Parks Maintenance	PPPM	1803	E	ASSINIBOINE	AVE	...	50.421823	-104.556643	SELINGER PARK	3.978268e-01	SELINGER PARK	3674 SELINGER CRES
...	...	...	...	...	...	...	...	...	...	...	...						

## Word Cloud: Identifying



## Comments Word Clouds

- Please note that this word cloud is only a preliminary sample, not a well-established presentation of our issue visualization.

## Topic Modeling: Identify Urgent Issues

- Note that these topics are only a preliminary sample, not a well-established presentation of our urgent issue classification.
- This provides some insight into potential issues that are often brought up in visitor comments, ranked from most frequent to less frequent.

	Topic	Count	Name
0	-1	1435	-1_the_and_to_of
1	0	621	0_water_sprinkler_leak_park
2	1	280	1_snow_clear_path_pathway
3	2	237	2_garbag_empti_bin_can
4	3	225	3_tree_branch_dead_are
5	4	221	4_caller_call_like_he
6	5	202	5_respons_to_the_councillor
7	6	179	6_cut_grass_easement_tall
8	7	150	7_weed_boulevard_properti_are
9	8	95	8_easement_he_permit_would
10	9	67	9_access_project_condit_or
11	10	61	10_dandelion_seed_weed_control
12	11	60	11_dog_leash_sign_park
13	12	57	12_messag_ca_pm_auto
14	13	56	13_weed_westerra_seed_area
15	14	52	14_riversid_grave_buri_memori
16	15	50	15_grass_mow_caller_state
17	16	49	16_light_rink_outdoor_work

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# Possible Solutions 04



## Future Solutions

- We shall improve our urgent issues ranking by stratifying with location or zip-code.



# Future Solutions

## Chatbot

A Chatbot that auto replies customer complaints based on GPT API, which aims to increase citizen satisfaction.

## Schedule

Analyze the seasonal, weekly, daily patterns of the complaints, we will design an optimal maintenance schedule that minimizes future complaints and maintenance work .

## Demo

- **Visitor complaint:**

More than two year ago the back of our yard in philip park was excavated and not return to an even surface for walk it's dangerous & muddy children have fallen there are many times. it just need a level. Can't this be attended to the pass of time is not make it better.

- **ChatGPT reply:**

We apologize for the inconvenience caused by the uneven surface at Philip Park. We understand the safety concerns and will promptly address the issue. Thank you for your patience and valuable feedback.



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**Implementation Plan/  
Recommended Solution  
(Work In Progress)**

05

**THANK YOU**

