**A logo for college computing

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**Assessment Cover Page**

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| ***Module Title: DVT*** |  |
| ***Assessment Title: Summer Repeat*** |  |
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**Declaration**

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I declare it to be my own work and that all material from third parties has been appropriately referenced.

I further confirm that this work has not previously been submitted for assessment by myself or someone else in CCT College Dublin or any other higher education institution.

**Contents**

[Title**:** 3](#_Toc180926083)

[Introduction: 3](#_Toc180926084)

[Objectives: 3](#_Toc180926085)

[Problem Definition: 4](#_Toc180926086)

[Scope: 4](#_Toc180926087)

[Data Sources: 5](#_Toc180926088)

[Ethical Considerations: 5](#_Toc180926089)

[References 6](#_Toc180926090)

[Appendix 1 6](#_Toc180926091)

[Appendix 2 7](#_Toc180926092)

[Appendix 3 7](#_Toc180926093)

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# Title**:**

Section

A graph showing the growth of a number of vehicles

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Seasonality is very clear

Every year shows a strong summer peak (May–September) and a low winter trough (December–January). This suggests seasonality is a major driver of cycling behavior.

COVID-19 Impact (2020–2021):

There’s a noticeable dip or volatility in 2020 and 2021, likely tied to lockdowns and remote work — very relevant to urban planning discussions.

Year-over-Year Growth is Mixed:

While earlier years (2013–2019) show consistent patterns, post-2021 traffic hasn’t clearly rebounded to peak 2019 levels, though there’s recovery in 2023–2024.

Some months are volatile:

Sharp drops or spikes month-to-month may be due to:

Weather events

Construction/disruption

Missing data in some months

A graph of blue bars

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Weekday Dominance is Clear:

Traffic is consistently highest Tuesday through Thursday, with a peak around Tuesday/Wednesday.

Monday and Friday are slightly lower but still strong — suggesting workweek commuters are the primary users.

Weekend Drop-Off:

Saturday and Sunday traffic is significantly lower — nearly half of weekday totals.

This supports the idea that bike usage is mostly utilitarian/commute-based rather than leisure-driven.

Urban Planning Insight:

Investment in weekday morning/evening infrastructure (e.g., lanes, signals) will serve the highest demand.

Weekend drops imply that if cities want to boost recreational cycling, more targeted efforts (like events, dedicated lanes in parks) may be needed

A graph of a number of bicycles

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Graph Title: Average Hourly Bicycle Traffic (East vs West)

Clear Commute Pattern:

Two peaks: around 8 AM and 5 PM — classic commute times.

East Sidewalk Is More Popular:

At all hours — especially during rush hour — the East sidewalk sees higher average traffic.

Why? It could be:

Easier access to/from bike routes or neighborhoods

Better infrastructure (e.g., smoother path, better lighting)

Social patterns (e.g., habit, visibility, bridge slope)

Planning Insight:

Even without directional data, this tells urban planners which sidewalk is under more pressure.

Can inform future upgrades like widening, lighting, or separating traffic types.

A graph of a number of people

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Key Observations:

Weekdays = Clear Commute Pattern

Two distinct traffic peaks:

Morning (7–9 AM) — sharp spike peaking at 8 AM

Evening (4–6 PM) — even higher spike, peaking at 5 PM

Suggests commuting to/from work or school dominates weekday cycling behaviour.

Weekends = Leisurely Midday Use

No sharp peaks — instead a gentle, bell-shaped curve.

Usage climbs slowly from 7 AM, peaks at 1–2 PM, and drops off by evening.

Indicates recreational or casual cycling during daylight hours.

Infrastructure Insight:

City planners should prioritize rush hour capacity upgrades on weekdays (signal timing, wider lanes).

On weekends, invest in recreational infrastructure like scenic cycleways or family-friendly routes.

A graph of blue bars

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1. Total Bicycle Counts by Year (Bar Plot)

Observations:

Growth trend from 2012 to 2019, peaking in 2019 (~1.2 million).

A sharp decline in 2020 and 2021 — likely pandemic-related (remote work, lockdowns).

Gradual recovery from 2022 to 2024.

Lower count in 2025 — likely due to incomplete data (only up to June).

Value for Urban Planners:

Highlights need to correlate cycling policy/infrastructure with real-world events (e.g., COVID impact).

Indicates general growth trend in cycling pre-pandemic, justifying continued investment.

A graph showing a number of rectangles

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2. Hourly vs Weekday Heatmap

Observations:

Weekdays: Strong blue hotspots at 8 AM and 5–6 PM (commute hours).

Weekends: Lighter, flatter activity throughout the day.

Tuesday & Wednesday show the highest weekday peaks.

Value for Urban Planners:

Reinforces earlier charts — visual clarity of rush hour pressure.

Easily conveys time-based congestion to stakeholders unfamiliar with line charts.

# Introduction:

Section

A screenshot of a computer program

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# Objectives:

Section

# Problem Definition:

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A screenshot of a graph

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A screenshot of a computer

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# Scope:

Section

# Appendix 1

GitHub Project Link