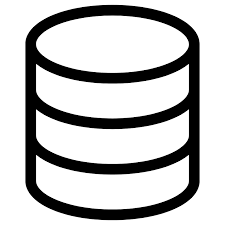
Project Swarm

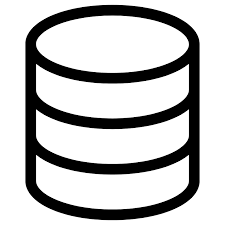
# Week 2 report

1. Version 0.3
2. 26/04/2019

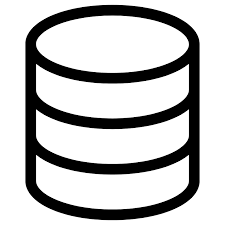
Team: **Ilia Kassianenko, Luigi Clerici**



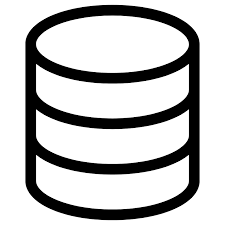
Infestation Reports [Public] (OpenMTL)



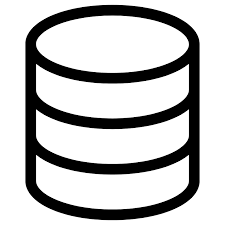
Recycling collection [private]



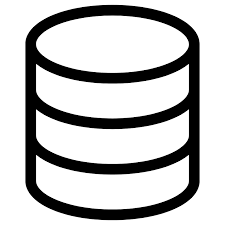
Compost collection [private]



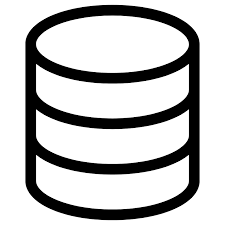
Waste collection [private]



heavy objects collection [private] (e.g. furniture, TV)



Borough Population Data [public] (OpenMTL)



Temperature YUL [public] (EnvCanada)

Isolates or quarantines area, regulates import and exports

Mediates leasing conflicts, and enforces leasing regulations

Grants loans based on property attributes

Remediates of infested dwellings and files report upon completion

Upholds decisions made by City of Montreal and provincial/fed. reg.

Offers insurance at premium in high risk living areas

Looks at freq. of property attributes for potential living area

Facilitates sale or purchase of dwelling based on property attributes, and Hires a third party to renovate and assess indept. the infestation

Requests landlord and city to improve dwelling attributes

Reviews the history of dwellings, risk profile for high contagion areas (reward vs. threat of financial loss)

Vets potential tenants. Hires third party for waste collection

Issues prevention and remediation guidelines, and applies fines

Landlord (owner operator)



Tenant or Resident (not planning to move)



Real estate agents



Insurance companies



Prospective Tenant or Resident (planning to move)



Municipal law enforcement, bailiff, judges, etc.



Exterminator



Banks



Prov. Government (Regie du Logement, grants, contagion containment, etc.)



Fed. Government (grants, contagion containment, etc.)



City of Montreal (inspector, auditor, legislator, etc.)

Investor (partnering with landlord or operating thru 3rd party) [consortium, parternship] - working remotely



|  |  |  |
| --- | --- | --- |
| **Rank (Smallest importance 1 to highest importance 12)** | **Personas** | **List of Use Cases** |
| 10 | 1) City of Montreal | Awareness programs?  Hotline to report issues, complaints, and suggestions in the area (e.g. 311 line)?  Dispatch inspectors  Impose fines within boroughs |
| 7 | 2) Federal Government | Border inspections responsibility  National level database? |
| 8 | 3) Provincial Government (“Régie du Logement”) | Can I pinpoint areas or general awareness program to reduce infestations?  Oversee municipal level enforcement and cleanups (Provincial rating for boroughs).  Provincial database. |
| 2 | 4) Banks | Is this a good investment area?  Do we have access to data to investigate? |
| 9 | 5) Exterminator | Perform extermination  Notify city of completed procedure  Communicate awareness steps with clients  Promote inspections and cleaning to possible clientele in the area |
| 3 | 6) Municipal Law Enforcement | Maintain orderly evictions of premises |
| 5 | 7) Prospective Tenant | Do I have access to historical for this dwelling? |
| 4 | 8) Insurance companies | Does client (owner/resident/lessee) have any past claims?  Any infractions? |
| 1 | 9) Real estate Agent | How do I check if the dwelling has a history of infestation?  Can I validate the cleanliness of the premises? (Inspection, Databank check) |
| 12 | 10) Tenant/Resident | What are my rights regarding this issue in my home?  (issue due to neglect by owner or neighbor)  How do I bring this to someone's attention? |
| 11 | 11) Landlord (Owner/Operator) | Can I perform a background check on potential resident's present dwelling? |
| 6 | 12) Investor | Can I incur losses investing in the building/area?  Have there been issues at this address before?  If know trouble area, are there any long range plans by the city to clean up the area? |

|  |  |  |
| --- | --- | --- |
| **Rank (Smallest importance 1 to highest importance 4)** | **List of Use Cases** | **List of Use Cases (detail)** |
| 2 | Personalised Awareness and Rights (What is happening and what can I do) | Awareness programs?  Hotline to report issues, complaints, and suggestions in the area (e.g. 311 line)?  Can I pinpoint areas or general awareness program to reduce infestations?  Communicate awareness steps with clients  Promote inspections and cleaning to possible clientele in the area  How do I bring this to someone's attention?  What are my rights regarding this issue in my home?  (issue due to neglect by owner or neighbour)  Can I validate the cleanliness of the premises? (Inspection, Databank check) |
| 1 | Regulation and enforcement | Border inspections responsibility  Notify city of completed procedure  Dispatch inspectors  Perform extermination  Maintain orderly evictions of premises  Impose fines within boroughs  If know trouble area, are there any long range plans by the city to clean up the area?  Oversee municipal level enforcement and clean-ups (Provincial rating for boroughs). |
| 3 | Calculate ROI | Is this a good investment area?  Can I incur losses investing in the building/area? |
| 4 | Historical Database and Rating | National level database?  Do I have access to historical for this dwelling?  Provincial database.  Does client (owner/resident/lessee) have any past claims?  Any infractions?  Can I perform a background check on potential resident's present dwelling?  How do I check if the dwelling has a history of infestation?  Have there been issues at this address before?  Do we have access to data to investigate? |

Personalised Awareness and Rights (What is happening and what can I do)

Regulation and enforcement

Calculate ROI

Historical Database and Rating

**Business Value**

**Value Complexity Matrix**

(Henry 2018)

**Implementation Complexity**

Area/Domain: Bed bug infestation

■ Descriptive Analytics

What happened? We know that there were exterminations at this location (intersection) in the past, sometimes frequently.

■ Diagnostic Analytics

Why it happened? History of exterminations nearby, where the bed bugs spread through clothing, humans, animals or other items unto uncontaminated items. With an incubation period, the spread may have been undetected for one to two weeks.

Used clothing, used furniture, rental housing, and travel accommodation facilities are available nearby from locations where exterminations occurred.

(Environment Canada 2018)

■ Predictive Analytics

What will happen? Infestation of a nearby residents and decrease in the quality of life by interrupting daily routine activities. High expenses incurred by landlord for extermination of bed bugs. In extreme cases, there a possibility of Lyme disease spread.

■ Prescriptive Analytics

What should I do? Avoid clutter, clean frequently, avoid taking in used items, avoid in-door animals unless cleaned at the time of home entry, and taking precautions in highly residential contaminated area. Use of decontamination methods including pesticides and other tools. Stay clear of short-term rental housing.

**Mockup of a dashboard (or app)**

**Data application:** Should I stay away from this neighbourhood ?

**Objective:** The analytics tool helps potential home occupants to decide whether to live in an area with historical reports of bed bugs and with a probability of infestation.

**Audience:** First time buyers and first time real estate investors

**Dashboard and Metrics and Analytics**

Descriptive Analytics

*Show the number of exterminations in an area defined by a filter selection (borough, neighbourhood, or intersection of longitude and latitude)*

Diagnostic Analytics

*Presents to the user the frequency, such as every 2-3 months, of nearby extermination. Also, shows the location of each reported extermination on a map relative to each other.*

Predictive Analytics

*Based on the high frequency of exterminations at one and nearby location and an incubation lead-time, predicts the potential location of upcoming infestation. If the potential of an infestation is present, then home occupancy is not favoured. Otherwise, home occupancy is favoured.*

Prescriptive Analytics

*For locations with a present potential of an infestation, recommends a waiting period for an extermination event to not occur at one or nearby locations. After this waiting period, home occupancy is favoured.*

**Inspiration References**

# Works Cited

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Environment Canada. *Bed Bug Control.* April 1, 2018. http://www.environnement.gouv.qc.ca/pesticides/permis-en/code-gestion-en/BedBugControl.pdf (accessed April 26, 2019).

Henry, Louisa. *Use a product value matrix to prioritize your roadmap.* July 4, 2018. https://www.reforge.com/brief/use-a-product-value-matrix-to-prioritize-your-roadmap#KBvOS1-Q8ExHBnb445VZJw (accessed April 26, 2019).

The Bed Bug Registry. *The Bed Bug Registry.* April 26, 2019. https://www.bedbugregistry.com/location/QC/?filter=address (accessed April 26, 2019).

