Predictive analytics in soft-drink production

QUB Analytathon:
19-21/07/2021

Problem overview

[1]The Leesman Index

- UK manufacturing and industrial engineering industry is not prepared for working from home.
- 53% of those working in the manufacturing sector had zero experience of working from home[1].
- Manufacturers have been forced to either reduce production throughput or suspend production indefinitely.
- Labelled as *non-essential*, many manufacturers often make products which are *essential* for facilitating working from home, deriving innovation and maintaining societal harmony.
- Negative financial impact can lead to business closure and employee redundancy.

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Proposed challenge

Incorporation of predictive analytics to predict quality of product at several stages of the production process.

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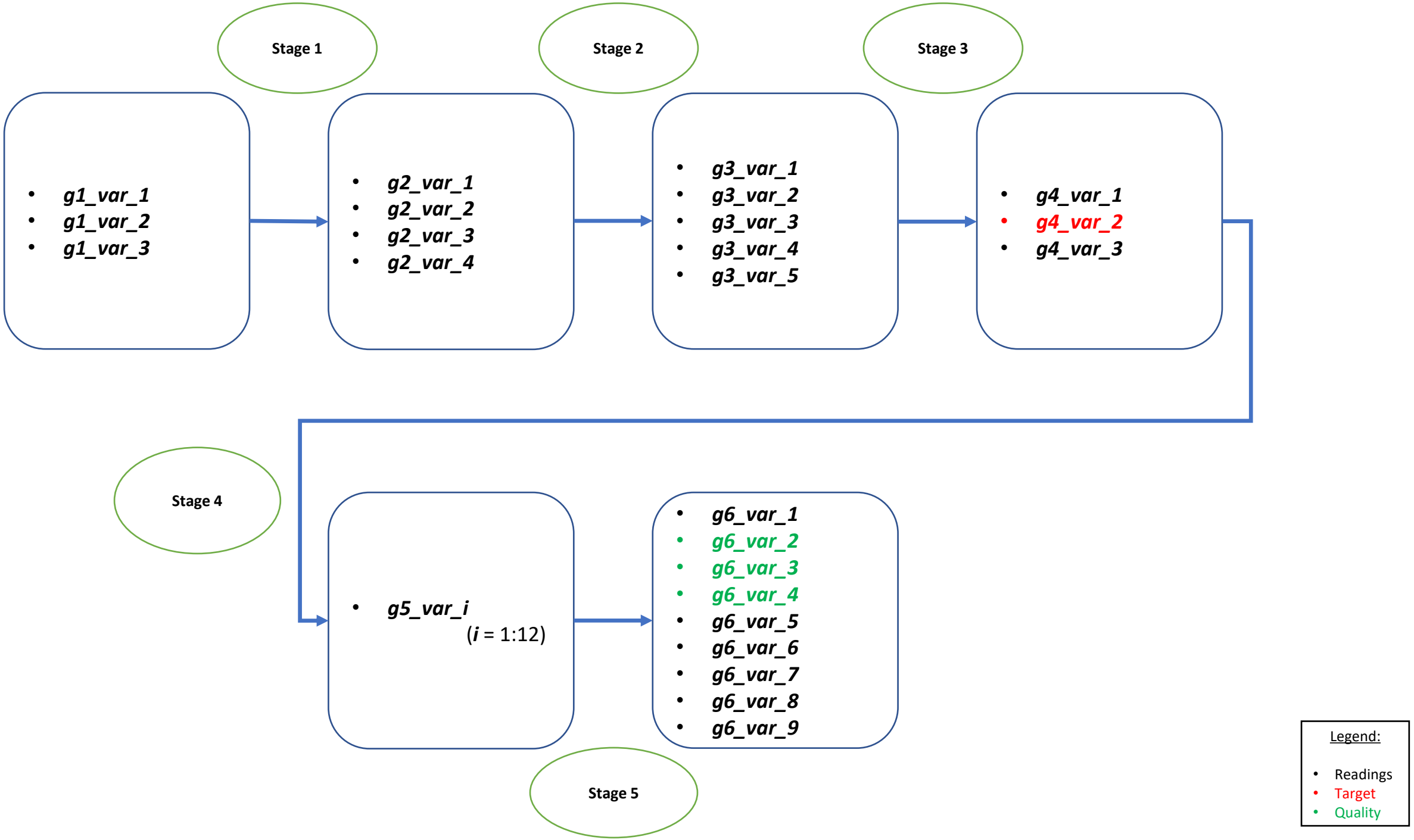
Stage 1
Stage 2
Stage 3
g1_var_1
g1_var_2
g1_var_3
g2_var_1
g2_var_2
g2_var_3
g2_var_4
g3_var_1
g3_var_2
g3_var_3
g3_var_4
g3_var_5
g4_var_1
g4_var_2
g4_var_3
Stage 4
g5_var_i
(i = 1:12)
g6_var_1
g6_var_2
g6_var_3
g6_var_4
g6_var_5
g6_var_6
g6_var_7
g6_var_8
g6_var_9
Stage 5
Legend:
Readings
Target
Quality

Key solution aspects

1. Data cleaning & exploratory data analysis

2. Predict variable *g4_var_2* using the preceding measurements in the process (optimal = -0.8574?)

3. Ascertain the relationship between *g4_var_2* and *g6_var_2*, *g6_var_3* & *g6_var_4*

4. Avail of standard statistical methods, data mining, machine learning or deep learning approaches

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Next steps *(it's not just about the fancy model!)*

- Think about how you might integrate any models you've developed.
- Think about where this data could be found.
- Think about how you would carry out any pre-processing required before being processed by your model.
- Think about how you would show the results from your model.

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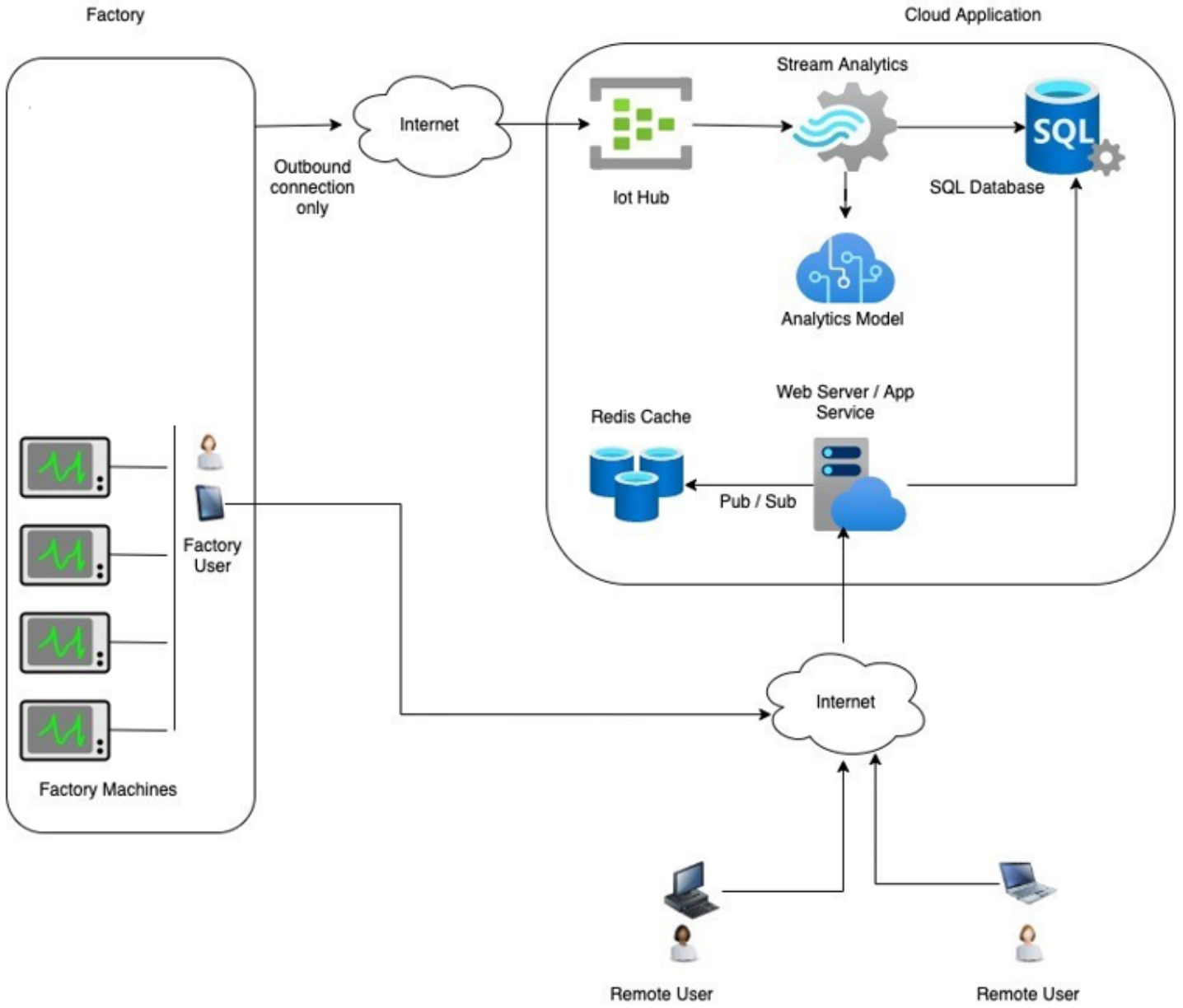
Solution architecture(example)



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Good luck!