MS2001 Business Data Management

MAY 2024 Term

Week 8 - Graded Assignment 8

If a shift is operational, then the Availability for that shift is 1; else 0.

Performance, Quality or MAPE can be calculated for operational shifts only.

$$Performance = \frac{Actual\ Output}{Rated\ Output}$$

$$Quality = \frac{No.\ of\ accepted\ parts}{Actual\ Output}$$

$$MAPE = \frac{1}{n}\sum_{t=1}^{n}\left|\frac{A_t - F_t}{A_t}\right|$$

where, n = no. of days (exclude non-operational shifts / days);

A_t = Actual Output;

F_t = Rated Output

Take Rated Output as 4000.

1. What is the Overall Equipment Effectiveness (OEE) of manufacturing in Week-1 (01-04-2022 to 07-04-2022 both days included)? **(Float)**
   Hint: OEE of a particular shift can be zero if no production happens.
2. What is the overall quality of the Part-A manufacturing process during the fortnight? **(Float)**
3. What is the performance of the Part-A manufacturing process during Week-2? **(Float)**
4. What is the average number of Part-A manufactured per hour during the fortnight? Assume that a shift runs for 8 hours and there is no break between shifts. (Round down the answer to the nearest whole number. E.g. We can't have 2.3 parts, so the answer will be 2 parts) **(Integer)** *Hint: Exclude non-production time.*
5. The company uses MAPE (Mean Absolute Percentage Error) to measure process variability in Part-A manufacturing. Which shift sees the maximum process variability during the fortnight? E.g. Shift 1 **(String)**