

A Bakery in Korea has hired you to help them with their production planning in 2020 and 2021. They gave you 3 files: 1) The past bakery sales for different items, 2) the selling price and ingredients of these items and 3) the raw material price.

An item can be either classified as pastry or drink. A worker can process 30 pastry items per day or 40 drinks per day. Assume that 60% of the orders are sold in store and 40% must be delivered. One worker can deliver 20 orders per day.

Workers can be hired on a part time basis for 750,000 won per month.

The raw material holding cost is 10% per year and placing an order will cost 131000 won. The order can contain any combination of the raw materials. When an order is placed, the lead time is one month.

The plan needs to contain the following information:

- a) Number of workers needed in every month.
- b) When should the bakery place its orders and the content of every order.
- c) A total sales forecast for 2020 and 2021
- d) The estimated total cost for 2020 and 2021.