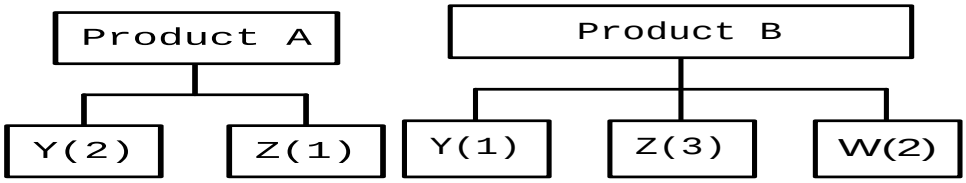
Case：Valentin

Valentin Inc. is a company who uses MRP to organize its production. The lot-sizing technique they chose for all references is lot-for-lot. They provide part of the product tree structure for products A and B (the figures shown indicate the number of component required to produce a product of the next level).



The components Y and W are used exclusively in the production of products A and B. They are produced by the same company and could not be purchased from an other company: the lead time is 2 months. Component Z is manufactured by a subcontractor and its lead time is 1 month.

Usually, deliveries are received at the beginning of the month.

At the end of January, the inventory for Y is 200 units ; a 400 units (Y) delivery is expected at the beginning of February, and a 500 units (Y) delivery at the beginning of March. A safety stock is required on a month-basis: it should be as high as 10 % of the gross requirements of the month that it is planned for.

Production planning for products A and B is presented in the following table. Those products are specific and demand that cannot be supplied is postponed (what has not been produced this month, will be required for the next month).

We assume that there are no capacity constraints for the production of any of the products or components.

Product A	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May.**	**Jun.**	**Jul.**	**Aug.**
Gross requirements A		190	220	180	150	200	240	230
Planned-order-receipts		110						
On-Hand Inventory	80	0	0	0	0	0	0	0
Net requirements		0	220	180	150	200	240	230
Planned order receipt			220	180	150	200	240	230
Planned order release		220	180	150	200	240	230	

Product A	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May.**	**Jun.**	**Jul.**	**Aug.**
Gross requirements A		90	120	110	70	120	90	130
Planned-order-receipts		90						
On-Hand Inventory	50	50	0	0	0	0	0	0
Net requirements		0	70	110	70	120	90	130
Planned order receipt		0	70	110	70	120	90	130
Planned order release		70	110	70	120	90	130	

Questions:

a) Determine the number for the planned-order releases for component Y, for the coming months.

b) On January 25th one of the main client calls and requires an extra delivery of 100 units of product A for the beginning of April (this extra demand is not part of the master production schedule). You tell the client that you are going to do your best to accommodate his request, and that you will confirm the next day, what is really possible :

- what number of product A will you be able to deliver at the beginning of April, if that is possible considering the meantime and the lead time for components,
- and, in case it is not possible to fullfill his demand at the beginning of April (in total or part of it), when will the remaining number be delivered (numbers and dates - remember that delivery is organized at the beginning of each month).

As this is your most important client, you are willing to use your safety stock to help him. Your subcontractor is currently facing some underactivity and can deliver a maximum of 200 extra units of component Z at the beginning of March if you confirm your demand tomorrow by fax.You will have to reckon and justify the answer you intend to present to your client(numbers and dates of delivery), as well as for your subcontractor (number and date of delivery) for that additionnal demand. You will also present the changes that your decision generates on planning for product A and component Y.