Below is a complete description of how I completed the tasks and how long it took me to complete them.

Timeline :

I received and read the email on 15th of May but was unable to start working on it as I was away. After coming back I installed the required Unity version and had a look at the project.
On 18th of May I spent 2 hours straight working on the project and was able to complete the first 4 compulsory tasks along with adding a toggle for bread and cake production.
On 19th of May I spent another 1 and half hours and was able to make carts and stock piles for different production buildings.
On 20th of May I spent almost 3 hours to finalise the tasks and do rest of the optionals tasks as well.

Logic and Assumptions :

There are a few things that I would like to discuss in order to give a better understanding of the task done.

- Regarding creating a resource in a set amount of time, I have added UI buttons for each production building to produce a product which is produced in a set amount of time which can be changed in inspector properties of Production Building. In order to keep the production running automatically on a set amount of time, just call the same produce function in our update function based on time.

- Regarding implementing a stockpile system to be used by each production building, there are a few different ways to perceive it. First scenario is that each production building would have their own storage for produced products and a storage for required ingredients to produce that product. In this case the carts will be used to fetch ingredients from other buildings in order to make products. Second scenario is that we have a single storage for all the ingredients and produced products. In this case we will have stock piles on different locations on the map which would act as extra resources up for grabs. The carts will go from the production buildings to those resource piles to gather more resources. I have seen the later process implemented in few of the games that I have played so I have implemented it in this project. Although the first process is also applicable as it only requires a few changes to the storage.

- Since I have presented UI buttons to produce each resource from production buildings, I have presented UI toggles as well for the buildings which produce more than one products.

- For path finding of Carts, I have used Unity's NavMesh system to direct carts from production building to stock pile and from there to the production building. Right now the carts are implemented in a way that they do not spend time collecting the resources or depositing them. We can add additional time to be required by each cart to gather and deposit resources.
  Also the NavMesh system can be improved further by adding one or two more checks to detect if the cart has reached its destination.
  I have placed a few walls in the scene and have scattered the buildings to show that the carts look for the right path. The carts are hidden under the Carts object in Hierarchy. I have made carts for 5 different types of ingredients and products.

Scripts :

I have written 4 new scripts to assist with the task. Here is a description of what these scripts do. (a bit of description is also written in each script with their functions)

Manager.cs :
Manager script is only used to refresh the UI text which represents the count of each ingredient.

ProductionBuilding.cs :
ProductionBuilding script is used on each production building or farm to produce one or more types of ingredients based on the available ResourceProcesses.

ResourceCart.cs :
ResourceCart script is used to manage the movement of resource cart from the production building to ResourcePile.

ResourcePile.cs :
ResourcePile script manages the stack of resource and interaction with the resource cart.

Extra Resources and Processes :

Resources	Production Buildings
Egg	Poultry Farm
Meat	Poultry Farm
BurgerBun	Bakery
ChickenCheeseBurger	Bakery
SugarCane	Sugar Farm
Sugar	Sugar Mill
Fruit	Fruit Farm
Juice	Juice Factory

Resource Production Requirements :

Egg :	Doesn't require anything
Meat :	Doesn't require anything
BurgerBun :	Requires 2 Flour
ChickenCheeseBurger :	Requires 1 BurgerBun, 1 Cheese, 1 Meat
SugarCane :	Doesn't require anything
Sugar :	Requires 5 SugarCane
Fruit :	Doesn't require anything
Juice :	Requires 2 Sugar, 2 Fruit