**Optimization problems**

You are a French resistance fighter in Nazi-occupied France. You wish to support the resistance by producing guns. To stay under the radar you will also be producing butter to sell at the town market.

Your job is to figure out how to solve the following 2 scenarios.

1 – Maximize profits. The thinking being that if you take in more money every month you can continue to operate for a longer period of time.

2 – Maximize gun production. More guns = more dead Nazis.

**There are some figures you need to know**:

Guns cost $150 to make and sell for $195. They also require .5 units of storage space.

Butter costs $100 to make and sells for $150. It requires 1.5 units of storage space.

You have $1800 to spend and 21 units of storage space.

Using Solver in Excel, figure out how to solve objectives 1 and 2.

Then create your own scenario (ex: minimum of 10 units of butter while maximizing guns) and solve for it as well.

Write up your results in a Word doc. For each scenario include:

* Excel spreadsheet
* List of constraints
* Short summary paragraph
* For your own scenario, include a description as well.