# Cross Government Data Science Hackathon

## Gov Wifi

To sign up for Gov Wifi text **GO** to **07537 417 417.**

You will receive a Username and Password.

## Problem 1: Room Booking and Optimisation

### Aim

To produce a solution that allows staff to book meeting rooms, ensuring meeting room usage is optimised. Currently staff are provided with a list of available rooms, which they then choose from.

Some staff, who generally need longer meetings, feel there is never a room available, yet room usage figures stand at ~70%. Current analysis indicates the current method spreads meetings across all available rooms, which reduces the chance of being able to book longer meetings (3 hours or more).

The new solution would look to address this issue.

### Success Criteria

Firstly, assuming random bookings, calculate the likelihood of booking a meeting room for 6 hours.

Success can then be measured by an improvement in likelihood for a 6 hour meeting.

### Data Provided

Anonymised historic room booking data. Fields include;

* Meeting Room Number
  + Common identifier for the room.
* Date
  + Date of the meeting.
* Start Time
  + Start time of the meeting.
* End Time
  + End time of the meeting.
* Booking Type
  + This field will show either *Advanced* or *Turn Up*. *Advanced* shows the meeting was booked in advance. *Turn Up* shows the meeting room was available when someone turned up to use a room (last minute booking).
* Attendees.
  + The number of people who attended the meeting.

Room data. Fields include;

* Meeting Room Number
  + Common identifier for the room.
* Capacity
  + The number of people who can fit in the room

## Problem 2: Energy Usage Baseline

### Aim

To understand energy usage in our buildings. How much of our energy usage is ‘baseline’? What external factors impact on our usage, e.g. weather?

‘Baseline’ usage in this scenario is assumed to be energy used for the safe running of the building, irrespective of the number of staff in, e.g. servers, chillers, plant machinery etc..

### Extension Task

If time permits, can the energy usage understanding be used to forecast energy requirements for the week ahead based on external factors such as weather?

### Success Criteria

A useable model that can extract any relevant data and a visualisation of the calculated measures.

### Data Provided

Anonymised utilities data. Fields include;

* Building
  + Common building identifier.
* Datetime
  + Half-hourly timestamps of the data.
* Utility
  + Either Gas or Electric.
* Consumption
  + KWh used.

Staff data. Fields include;

* Building
  + Common building identifier.
* DateTime
  + Hour and Date staff members were working.
* Count
  + Number of staff working in the building

Weather data, one tab per region. Fields include;

* Month
  + Month of reading
* Day
  + Day of reading
* Temperature
  + Minimum, maximum and average temperature In Fahrenheit
* Dew Point
  + Minimum, maximum and average dew point temperature In Fahrenheit
* Humidity
  + Relative humidity
* Wind Speed
  + Speed in miles per hour
* Pressure
  + Barometric pressure in inches of mercury

Region data. Fields include;

* Building
  + Common building identifier.
* Region
  + Common region identifier

## Problem 3: Desk Usage Optimisation

### Aim

All the staff provided in the data set are due to move to a new Regional Centre. What would be the most efficient way to utilise the new Regional Centre?

### Success Criteria

A useable model that can extract any relevant data and a visualisation of the calculated measures.

### Extension Task

If time permits, can an app be created that allows staff to be guided towards a desk when they enter a building?

### Data Provided

Anonymised historic utilisation data. Fields include;

* Username
  + Common identifier for the staff member.
* Date
  + Date staff member was working.
* Team
  + Team the staff member works in.
* Visitor Flag
  + Shows whether the staff member is visiting the office, or it is their ‘home’ office.

Team allocation data. Fields include;

* Desk
  + Common identifier for the desk.
* Team
  + Team the desk is currently assigned to.
* Special Feature
  + For example, standing desk.

Staff data. Fields include;

* Username
  + Common identifier for the staff member.
* Team
  + Team the staff member works in.
* Age Range
  + Age band of the staff member.
* Gender
  + Male/Female.
* Grade
  + Staff grade from A (highest) to F (lowest)
* Travel Time
  + Time taken to commute to the home office.
* Special Feature
  + For example, standing desk.