

Unit 42 – Spreadsheet Modelling

Assignment 2: P4, P5, P6, M2, M3

Excel Tasks

- Using appropriate tools to present data. [P4]
- Customise the spreadsheet model to meet a given requirement. [P5]
- Use automated features within the spreadsheet model to meet a given requirement. [P6]

File attachments: [42.2.xlsm](#) [42.2-form.xlsm](#)

Note: All worksheet and workbook protection in these files uses "password" as a password.

Presentation

Part 1: Data Analysis for Marketing [Part of P4]

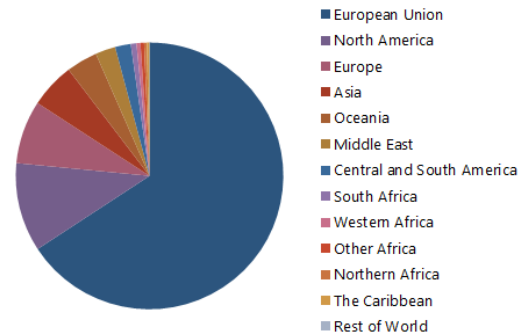
Judging by the number of visitors to the UK from each of the listed countries per year, I suggest that it would be most beneficial to target marketing towards the following countries, in the specified languages:

Country	Visits per year	Language
France	3930396	French
Germany	3161980	German
USA	2790504	English, Spanish
Irish Republic	2394513	English, Irish (Gaelic)
Netherlands	1921942	Dutch, Frisian
Spain	1704476	Castilian Spanish, Catalan, Galician, Basque
Italy	1665808	Italian
Poland	1357008	Polish
Belgium	1188322	Dutch (Flemish), French
Australia	1069962	English

This data was found using a Top 10 conditional formatting rule across all of the data for total visits. This allowed me to select the countries that supplied the highest amount of visitors to the UK per year and isolate them. I then sorted the results by the number of visitors, and consolidated the language data I found on infoplease.com .

The chart to the right shows the proportion of visitors from each geographical region of the world. This further shows the significance of visits from Europe and North America, which combined account for more than 75% of the total number of visits to the UK annually.

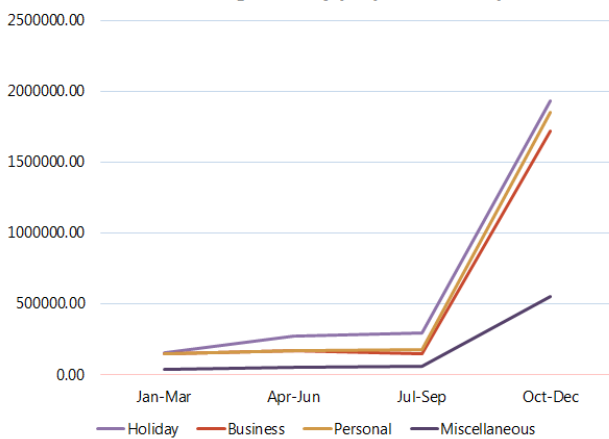
Total visits to the UK from different global regions each year



A chart showing the proportion of visitors from each geographical/political region of the world to the UK per year.

Screenshot of Excel taken by me

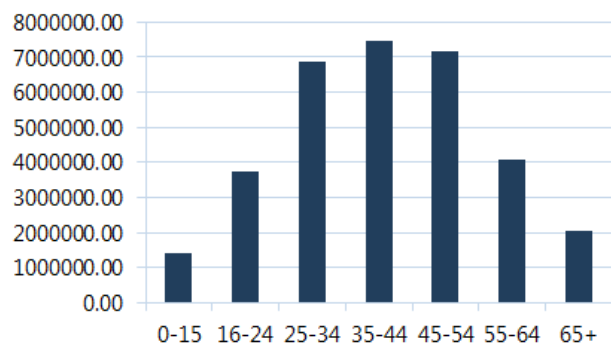
Visits to the UK organised by purpose in each quarter



The graph on the left shows the number of visitors to the UK each quarter in each purpose category. The chart on the right shows the number of visitors to the UK each year in each age group.

Screenshots of Excel taken by me

Total Visitors



In order to show the seasonal trend in the amount of visitors to the UK in each purpose category I plotted a graph with four lines, showing the visitor count for each quarter of the year. This graph clearly shows that the UK is visited by the greatest number of people, for all purposes, in the fourth quarter. The suddenness of this increase, when also considering the similarity between the different categories, suggests the could be an error or anomaly in the data set.

To display graphically the number of visitors to the UK each year that fall into each of the age categories, I decided to generate a bar chart. Using this, we can clearly see the the most popular age group is 35–44, with 25–34 and 45–54 close behind. Using this data we could reach a number of conclusions regarding the direction of marketing efforts. Personally, I think marketing should be targeted towards 25–44 year olds in

the countries listed above. People in this age bracket have shown to travel more often to the UK, and I feel that the younger end of the bracket in particular could be persuaded to visit thanks to their more flexible lives.

Part 2: Generation of Charts and Tables [M2]

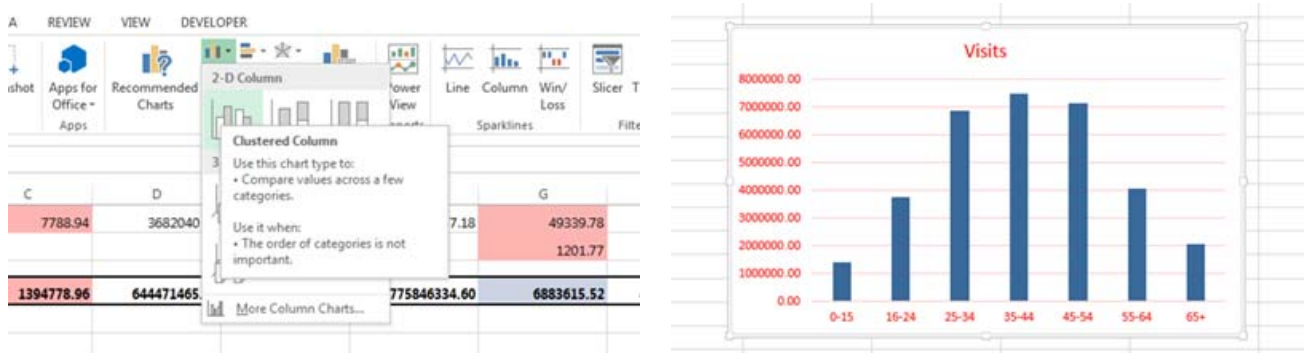
Excel can be used to create rich visualisations of data, allowing users to create pie charts, line graphs and histograms. In most situations generating a graph or chart is as simple as selecting the area of data you would like to represent visually, and clicking the corresponding button on the ribbon, under the Insert tab. Often a title is not available for the graph, and axes are labelled incorrectly. For this reason, these aspects of the graph or chart must often be edited manually.

This process is shown in the screenshots below.

Age Group	Visits
0-15	1394778.96
16-24	3755867.79
25-34	6883615.52
35-44	7484565.34
45-54	7149132.78
55-64	4063385.51
65+	2060139.07

Data is organised so that Excel can interpret it effectively, by consolidating information and positioning it simply, and with headers. A range of data is then selected on the worksheet, including the headers for the data columns/rows.

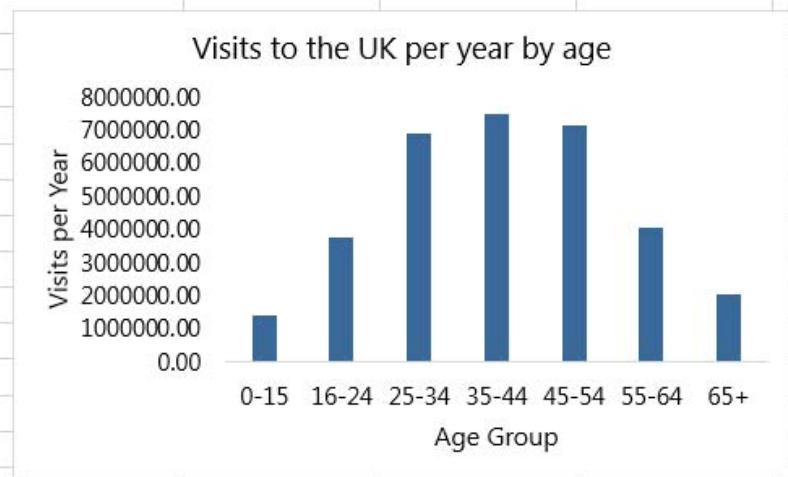
Screenshots taken by me



Different presets can be picked from the bar chart icon in the Charts section of the Insert tab. Excel creates a preview of the graph as it would appear, even as you hover over these icons. The colours are selected based on your current colour scheme.

Screenshots taken by me

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The table colours, typography and layout can be changed to a great degree, meaning graphs and charts can be changed to suit the company branding and/or colour scheme.

Screenshot taken by me

PivotTables

In some cases, standard cell layouts or Excel tables don't provide enough flexibility when showing data, which is where PivotTables can be used. These allow a range of data to be selected and then used in a table that can be quickly changed. By dragging arrays of data to areas of the table (*Column Headers*, for example), one can build complex tables quickly, and these can be fine tuned by filtering the data shown by various methods or sorting the headers of the table rows.

PivotTables bring their own kind of charts and graphs into Excel, separate from the standard ones. These are built to update as the information in the PivotTable they're mapped to changes. This dynamic design can be useful particularly when the dimensions of a table are changing. A PivotChart was used in the `42.2.xlsm` spreadsheet to show data as a pie chart.

Automating Tasks in Excel: A Comparison [M3]

Macros can be used in Excel to automate processes. In our scenario, a macro written in Visual Basic for Applications (VBA) was used to take data written in the visitor form and place it on a separate, hidden worksheet. This spreadsheet would only be unlocked by the macro as data was being entered, meaning that users of the form cannot tamper with the information others have submitted.

Buttons

In Excel, a number of form controls exist, each available in standard Excel form and ActiveX versions. The former is implemented directly into the application and is more basic. These form controls allow you to take input and create a submit button, for instance, but in order to change the colour or style of the box, one must look to ActiveX form controls. These allow far more properties to be changed, altering both their appearance and functionality.