**Intro QuickSight (+ Holidays)**

**Part I – Theory and Definitions**

1. What QuickSight is and what it is not. QuickSight is:
   1. Interactive **data visualisation tool**, for charts and dashboards
   2. **data import tool** which enables creating relationships between data sources
   3. **NOT** an extensive data manipulation tool (eg data cleansing, validation, editing – data should be cleaned and preferably prepared before loading into QuickSight)
2. Similar tools: Tableau, Looker, Excel Power query, PowerBI, Qlik, anything else?
3. QuickSight features:
   1. **Datasets** (loaded into SPICE engine)
   2. **Analyses** is the basic workspace for creating data visualizations, which are graphical representations of your data. Each analysis contains a collection of visualizations that you arrange and customise on a ….
   3. **Sheet** is a page that displays a set of visualizations and insights. You can imagine this as a sheet from a newspaper, except that it's filled with charts, graphs, tables, and insights. You can add more sheets, and make them work separately or together in your analysis. Tiled or Free form.
   4. **Dashboards** are QuickSight published reports, created from analyses or templates. QuickSight dashboards sharable. With the right permissions, scheduled email reports can be created from them. The CreateDashboard and DescribeDashboard API Operations act on the dashboard entity
   5. **IAM** AWS Identity and Access Management (IAM) is a web service that helps you securely control access to AWS resources. With IAM, you can centrally manage permissions that control which AWS resources users can access.
4. Data preparation is the process of transforming data for use in an analysis. This includes making changes like the following:

* Filtering out data so that you can focus on what's important to you.
* Renaming fields to make them easier to read.
* Changing data types so that they are more useful.
* Adding calculated fields to enhance analysis.
* Creating SQL queries to refine data.

1. SPICE (Super-fast, Parallel, In-memory Calculation Engine) is the robust in-memory engine that QuickSight uses. SPICE is engineered to rapidly perform advanced calculations and serve data. The storage and processing capacity available in SPICE speeds up the analytical queries that you run against your imported data. By using SPICE, you save time because you do not need to retrieve the data every time that you change an analysis or update a visual.
2. A data visualisation, also known as a visual, is a graphical representation of data. There are many types of visualizations, including diagrams, charts, graphs, and tables. **All visuals begin in AutoGraph mode**, which automatically selects the best type of visualization for the fields that you select. You can also take control and choose your own visuals. You can enhance your analytics by applying filters, changing colours, adding parameter controls, custom click actions, and more.
3. *Machine learning (ML) Insights propose narrative add-ons that are based on an evaluation of your data. You can choose one from the list, for example forecasting or anomaly (outlier) detection. Or you can create your own. You can combine insight calculations, narrative text, colours, images, and conditions that you define.*

**Part 2 – holidays data source demo**

1. Log into AWS QuickSight (learners who have not used it before will have to register a new QuickSight organisation and choose the AWS services which should be allowed. We do not at this point require any other AWS services)
2. Data Lifecycle within AWS QuickSight
   1. **Upload new data set**
   2. **Prepare data - add additional data sets with relationships**
   3. **Create analysis**
   4. **Design the dashboard of analyses**
   5. **Consider interactive elements**
   6. **Publish as a dashboard considering the permissions**
3. (optional) review the data set in excel
4. Select data set from the left menu and choose the blue button to create a new data set on the top right.
5. Select the file option (xlsx) and the Holidays file
6. Choose bookings (the bookings tab) of the workbook before choosing to prepare the data > edit settings
7. At this point you can add more data (the remaining tabs) to bring in the customer tab from the excel workbook and exclude the repeated field (customerid) from the data source
8. You can use the red circles to join the two data sources on CustomerID, choosing the join type (in this case the join type WILL matter because we do have customers in this data without any bookings. Choose the inner join type (to retain only matches)
9. Point out the other features on this page including
   1. Publishing history of data set
   2. Filters and parameters
   3. Field controls – point out how to add a description to the field or rename it
   4. Data types and geog roles (available in the fields list and in the preview headers)
   5. Create calculations
   6. Folders (to organise fields)
10. Save and publish the data set then create a new analysis from the published data set | publish and visualise (go straight into analysis mode) – as an interactive sheet
11. Walk through a simple visual (1) Customer Name with Count of Booking ID (drag booking ID onto green shelf)

A screenshot of a graph

Description automatically generated

1. Show how to export the data from the visual
2. Walk through a simple visual (2) Arrival date (Month from the drop down) with Net Revenue which will autograph as a line chart

A graph with blue lines and numbers

Description automatically generated

1. Review the two charts and their field wells, discuss the colours and chart types
2. Return to the data set from the Data menu > Datasets

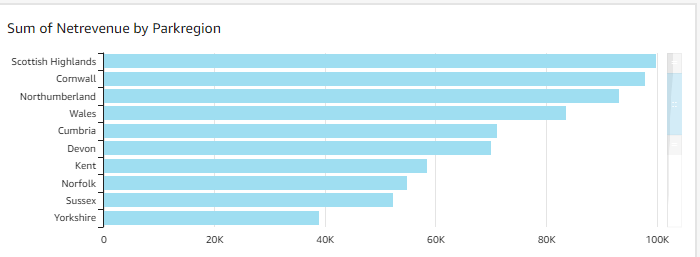
A screenshot of a computer

Description automatically generated

1. From there, ask the learners to follow the same steps as demo’d to add the parks table into the data set before re publishing (publish and visualise to return to the sheet). The SPICE engine might take a little time to update the data. [Task 1]
2. Learners create a simple autograph visual showing the park region which has the highest net revenue [Task 2]
3. Point out that the auto save is switched on throughout the process

A diagram of a customer service

Description automatically generated



**Part 3 – holidays - split and filter**

1. Select the bookings count by customer id bar chart, break down the bar chart by holiday type by adding the field to the Group/Colour field well and switching to a horizontal stacked bar chart.
2. Show how the colour legend can be used to change the colour of the groups within the bars.
3. Use the booking id axis to sort by booking id count
4. Add a filter to the sheet which applies to all visuals (explore the visual / some visuals/ all visuals options) for Employee so we can explore which employee sold what holidays – when, to whom, where : apply conditions as needed and explore all filter options including Top and bottom filters.

A screenshot of a computer

Description automatically generated

1. Learners will add a second filter to one visual only which shows the top 3 park regions by sum of net revenue [Task 3]

A screenshot of a computer

Description automatically generated

1. Add the holiday type to small multiples of the line chart

**Part 4 – holidays – visual details**

1. Select each visual and provide appropriate titles using the format visual menu on the left
2. Add the data labels to the park region chart
3. Add a reference line (dotted) to the net revenue by park region visual

A graph of a number of months

Description automatically generated

A graph with blue rectangles

Description automatically generated

A screenshot of a graph

Description automatically generated

1. Add detailed tooltips to the visuals with additional information on them, first tutor then learners [task 4]
2. Add customer name action to all visuals using quick create (same sheet visuals) from the stacked bar chart. Learners will then add a holiday type/arrival month custom action from small multiples to the top 3 park regions [task 5]
3. Show how to add narrative to the analysis sheet using the add or insert text options
4. Publish the sheet as a dashboard using the share feature in the top right (show the options)

**Part 5 – holidays - calculations**

1. Return to the data source Holidays to add new fields
2. Click on holidays data set and edit data source
3. Use the top of the fields list to add new fields, exploring the available menu and AWS guide
4. Add a revenue\_pp field using the fields menu and operator.
5. Add a lead time (in days) field using datediff() - note this will need to be converted to a measure – green field in order to plot the distribution
6. Add a booking category to capture logic around number of adults and children using ifelse()
7. In each case, preview the output in the edit data preview pane to confirm the calculation works as expected.

A screenshot of a computer

Description automatically generated

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A screenshot of a computer code

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1. Save and publish, before returning to the holidays analysis, adding a new sheet which you can use to visualise the new fields as: distribution of lead time (histogram), count of records by group\_category (bar) and average revenue per person by each salesperson (tree map)
2. Explain and set up the independent task now given to the learners – for example:

# Learner independent / guided task

**Tutor can discuss what actionable business insights are (give some examples from real life)**

**The holiday camp company is in ‘the Red’ because it had a few bad seasons. You now have X amount of time to continue to explore this data set, using the new fields we have recently added, perhaps explore changing the join types, to try and identify an actionable insight / business recommendation for the organisation – something that they could do to try and get the company back into the black and more financially successful. What could they do more of, less of or change entirely? Each learner must come up with an insight, visual display of the data and a specific recommendation. You have the option of doing the task independently and creatively or following some guided steps. Open the task document and ask if you need clarification before starting.**