Visualization 5

What can we learn from the visualization?

To understand how features that existed in every time period are distributed throughout those time periods

What is the name for the type of visualization(s) used?

Stacked and normalized stacked bar charts
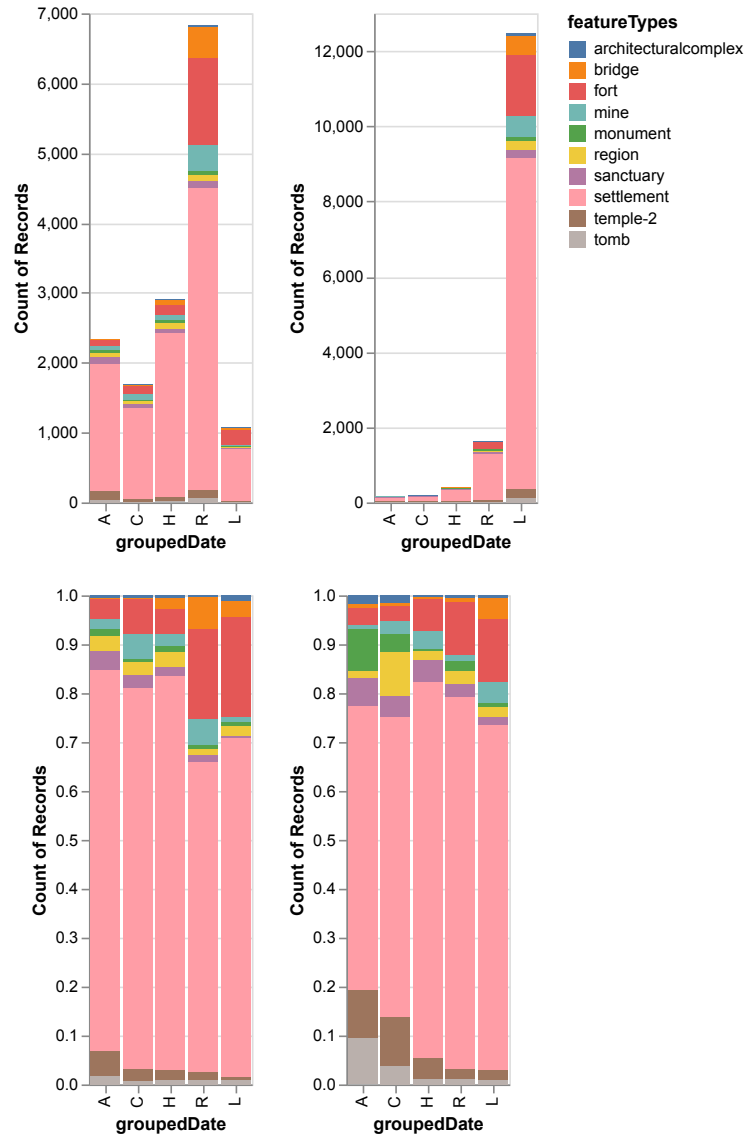
```python
import altair as alt

places = ('https://raw.githubusercontent.com/SwanseaU-TTW/csc337_coursework1/master/ple:

popularFeatureTypes = ['settlement', 'architecturalcomplex', 'fort', 'temple-2', 'bridge

def stackedBarChart(column):
    return (
        alt.Chart(places).transform_calculate(
            groupedDate=f'datum.{column} < -550 ? "A" : datum.{column} < -330 ? "C" : da
        ).mark_bar().encode(
            alt.X("groupedDate:O", sort=['A', 'C', 'H', 'R', 'L']),
            alt.Y('count()'),
            color='featureTypes:N',
            tooltip=['groupedDate:N', 'featureTypes:N', 'count()']
        ).transform_filter(
            alt.FieldOneOfPredicate(field='featureTypes', oneOf=popularFeatureTypes),
        ).interactive()
    )

alt.vconcat(
    alt.hconcat(
        stackedBarChart('minDate'),
        stackedBarChart('maxDate')
    ),
    alt.hconcat(
        stackedBarChart('minDate').encode(alt.Y('count()', stack='normalize')),
        stackedBarChart('maxDate').encode(alt.Y('count()', stack='normalize'))
    )
).properties(
    title='Stacked bar charts and corresponding normalized stacked bar charts showing po
).configure_title(orient='top', anchor='middle')
```

Stacked bar charts and corresponding normalized stacked bar charts showing popular features' minDate and maxDate within each time period

featureTypes
- architecturalcomplex
- bridge
- fort
- mine
- monument
- region
- sanctuary
- settlement
- temple-2
- tomb

What are all visual mappings used?

Given that date is minDate or maxDate

x position

date (grouped and sorted according to the group)

y position

count of records

color

featureTypes

tooltip

date (grouped), featureTypes, count of each featureType

Was there any special data preparation done?

The data has been grouped to match the pleaides README on `timePeriods` such that the records fall into the following bins "*...'A' (1000-550 BC), 'C' (550-330 BC), 'H' (330-30 BC), 'R' (AD 30-300), 'L' (AD 300-640)*". The data has also been filtered such that only a subset of `featureTypes` that are known to exist across all `timePeriods` are observed.

What are the limitations of your design?

This visualization could be improved by allowing users the ability to zoom into the chart. This visualization could be improved by randomly choosing what `featureTypes` to observe. Better still, improvements could be made by dynamically choosing what records to observe depending verious criteria, especially across the identified `timePeriods` . Further, input elements such as checkboxes, dropdowns and/or radio buttons could be used to allow dynamical selection of what criteria is used on the visualization.