**FIRST SET OF VISUALISATIONS (Visualisations 1-6)**

**SELECTABLE AS FOLLOWS FROM THE LEFT-HAND SIDE MENU:**

**Number of museums**

**open at a given time**

**that opened up to given time**

**open over time**

**openings over time**

**closings over time**

**openings and closings over time**

**DESCRIPTION:**

**Number of museums**

1. **open at a given time [ Bar ]**
2. All
3. For each Governance type
   1. For each Governance subtype of a Governance
4. For each Subject type
   1. For each sub-subject of a Subject
5. For each size
6. For each Geographical location 
   1. For each sub-location of a location
      1. For each sub-sub location of a location

Default point in time is Now = 2017

A temporal slider on the bottom of the display allows you to move back and forth – the granularity is 1 year

-------------------------------------------------------------------

1960 2017

*Logic: Suppose the time selected is t; for each museum with an opening date (fo,to) and a closing date (fc,tc), we add to the count for time t as follows:*

*If t < fo then 0*

*If fo <= t <= to then t-fo+1 / to-fo+1*

*If to < t < fc then 1*

*If fc <= t <= tc then tc-t+1 / tc-fc+1*

*If t> tc then 0*

for t in range(firstyear,lastyear+1):

if (t < fo or t > tc):

nop=0

else:

idx=t-firstyear

if (t > to and t < fc):

alltopics[str(sub)][idx]=alltopics[str(sub)][idx]+float(1)

else:

if (t >= fo and t <= to):

frac=float(t - fo + 1)/float(to - fo + 1)

alltopics[str(sub)][idx]=alltopics[str(sub)][idx]+frac

if (t >= fc and t <= tc):

frac=float(tc - t + 1)/float(tc - fc + 1)

alltopics[str(sub)][idx]=alltopics[str(sub)][idx]+frac

1. **that opened up to given time [ Bar ]**

* All
* For each Governance type
  + For each Governance subtype of a Governance
* For each Subject type
  + For each sub-subject of a Subject
* For each size
* For each Geographical location
  + For each sub-location of a location
    - For each sub-sub location of a location

Default point in time is Now = 2017

A temporal slider on the bottom of the display allows you to move back and forth – the granularity is 1 year

-------------------------------------------------------------------

1. 2017

*Logic: Suppose the time selected is t; for each museum with an opening date (fo,to) we add to the count for time t as follows:*

*If t < fo then 0*

*If fo <= t <= to then t-fo+1 / to-fo+1*

*If to < t then 1*

for t in range(firstyear,lastyear+1):

idx=t-firstyear

if (t < fo ):

nop=0

elif (t >= fo and t <= to):

frac=float(t-fo+1)/float(to-fo+1)

alltopics[str(sub)][idx]=alltopics[str(sub)][idx]+frac

elif(t > to):

alltopics[str(sub)][idx]=alltopics[str(sub)][idx]+float(1)

1. **open over time [ line graph ]**

**X axis is the year [ from 1960 to 2017 ]**

**Y axis is the number**

**Zoom into one decade to see a fragment of the line in more detail**

(i) All

(ii) Split the number, according to an attribute, so we get n lines on the same graph. The attributes are as above. So:

* A line for each Governance type
  + A line for For each Governance subtype of a Governance
* A line for For each Subject type
  + A line for For each sub-subject of a Subject
* A line for For each size
* A line for For each Geographical location
  + A line for For each sub-location of a location
    - A line for For each sub-sub location of a location

*Logic: same as 1*

1. **openings over time [ line graph ]**

**X axis is the year [ from 1960 to 2017 ]**

**Y axis is the number**

**Zoom into one decade to see a fragment of the line in more detail**

(i) All

(ii) Split the number, according to an attribute, so we get n lines on the same graph. The attributes are as above. So:

* A line for each Governance type
  + A line for For each Governance subtype of a Governance
* A line for For each Subject type
  + A line for For each sub-subject of a Subject
* A line for For each size
* A line for For each Geographical location
  + A line for For each sub-location of a location
    - A line for For each sub-sub location of a location

*Logic:*

*If t < fo then 0*

*If fo <= t <= to then 1 / to-fo+1*

*If to < t then 0*

for t in range(firstyear,lastyear+1):

idx=t-firstyear

if (t < fo ):

nop=0

elif (t >= fo and t <= to):

frac=float(1)/float(to-fo+1)

alltopics[str(sub)][idx]=alltopics[str(sub)][idx]+frac

elif(t > to):

alltopics[str(sub)][idx]=alltopics[str(sub)][idx]+float(1)

1. **closings over time [ line graph ]**

**X axis is the year [ from 1960 to 2017 ]**

**Y axis is the number**

**Zoom into one decade to see a fragment of the line in more detail**

(i) All

(ii) Split the number, according to an attribute, so we get n lines on the same graph. The attributes are as above. So:

* A line for each Governance type
  + A line for For each Governance subtype of a Governance
* A line for For each Subject type
  + A line for For each sub-subject of a Subject
* A line for For each size
* A line for For each Geographical location
  + A line for For each sub-location of a location
    - A line for For each sub-sub location of a location

*Logic: Suppose the time selected is t; for each museum with a closing date (fc,tc) we add to the count for time t as follows:*

*If t < fc then 0*

*If fc <= t <= tc then 1 / tc-fc+1*

*If tc < t then 0*

for t in range(firstyear,lastyear+1):

if (t < fc or tc < t):

nop=0

else:

idx=t-firstyear

if (fc <= t and t <= tc):

frac=float(1)/float(tc-fc+1)

alltopics[str(sub)][idx]=alltopics[str(sub)][idx]+frac

1. **openings and closings over time [ two-line graph ]**

**Superimposing the two “All” lines from 4 and 5**

**No splits into attributes.**

*Logic: combination of 4 and 5 above.*

**SECOND SET OF VISUALISATIONS (Visualisations 7)**

**These are all heat maps, with a time slider beneath each one.**

**Museums are counted if they are open at the selected time (see earlier logic no. 1 about how to “weight” date intervals)**

**VISUALISATIONS ARE SELECTABLE AS FOLLOWS FROM THE LEFT-HAND MENU**

**Plot**

**X**

**Governance type**

**Governance subtypes**

**Subject type**

**Subject subtypes**

**Museum Size**

**Location**

**sub-location of a location**

**sub-sub locations**

**Y**

**Governance type**

**Governance subtypes**

**Subject type**

**Subject subtypes**

**Museum Size**

**Location**

**sub-location of a location**

**sub-sub locations**

**For example x = location, y = subject area:**

**subject**

**area on**

**y axis**

**|**

**|**

**|**

**|**

**|**

**|**

**| shade of green**

**| plus Count in**

**| each square**

**\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_**

**Location on x axis**

**x = size, y = subject area**

**subject**

**area on**

**y axis**

**|**

**|**

**|**

**|**

**|**

**|**

**| shade of green**

**| plus Count in**

**| each square**

**\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_**

**size on x axis**

**x = size, y = subject area**

**museum**

**size on**

**y axis**

**|**

**|**

**|**

**|**

**|**

**|**

**| shade of green**

**| plus Count in**

**| each square**

**\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_**

**Location on**

**x axis**

**THIRD SET OF VISUALISATIONS (Visualisations 8)**

**To visualise the additional Output Area Classification and Deprivation index data, add the following two attributes to both the X list and the Y list of “Plot” above:**

**Output area classification**

**Deprivation index**

**E.g. if X is selected as “Governance type” and Y as “Output area classification”**

**N.B. for the Y axis attributes, it would be good to not only show the classification integer but also a brief descriptive label, as below.**

