First Names homework : by Chaimaa ZEGOUMOU

Download Raw Data from the website

In [1]:

```
file = "dpt2019_txt.zip"
if(!file.exists(file)){
  download.file("https://www.insee.fr/fr/statistiques/fichier/2540004/dpt2019_csv.zip",
        destfile=file)
}
unzip(file)
```

Dataframe build from the file

In [2]:

```
library(tidyverse)
library(ggplot2)
FirstNames <- read_delim("dpt2019.csv",delim=";");
```

```
── Attaching packages ─────────────────────────────────────── tidyverse 1.3.0 ──

✔ ggplot2 3.3.2     ✔ purrr   0.3.4
✔ tibble  3.0.4     ✔ dplyr   1.0.2
✔ tidyr   1.1.2     ✔ stringr 1.4.0
✔ readr   1.4.0     ✔ forcats 0.5.0

── Conflicts ────────────────────────────────────────── tidyverse_conflicts() ──
✖ dplyr::filter() masks stats::filter()
✖ dplyr::lag()    masks stats::lag()


── Column specification ────────────────────────────────────────────────────────
cols(
  sexe = col_double(),
  preusuel = col_character(),
  annais = col_double(),
  dpt = col_character(),
  nombre = col_double()
)


Warning message:
“36445 parsing failures.
  row    col expected actual          file
10781 annais a double   XXXX 'dpt2019.csv'
10782 annais a double   XXXX 'dpt2019.csv'
10783 annais a double   XXXX 'dpt2019.csv'
10784 annais a double   XXXX 'dpt2019.csv'
10787 annais a double   XXXX 'dpt2019.csv'
..... ...... ........ ...... .............
See problems(...) for more details.
”
```

Preprocessing

Translation to english

In [3]:

```
cols <- names(FirstNames)
names(FirstNames)[names(FirstNames) == 'sexe'] <- 'Gender'
names(FirstNames)[names(FirstNames) == 'preusuel'] <- 'FirstName'
names(FirstNames)[names(FirstNames) == 'annais'] <- 'BirthYear'
names(FirstNames)[names(FirstNames) == 'dpt'] <- 'Department'
names(FirstNames)[names(FirstNames) == 'nombre'] <- 'Number'
```

First question: first name frequency

In [4]:

```
library(dplyr)
FirstNames <- filter(FirstNames, FirstName !="_PRENOMS_RARES" &  grepl("^[0-9]{1,}$", BirthYear) &grepl("^[0-9]{1,}$'
head(FirstNames)
```

Out[4]:

A tibble: 6 × 5

Gender	FirstName	BirthYear	Department	Number
<dbl>	<chr>	<dbl>	<chr>	<dbl>

Gender	FirstName	BirthYear	Department	Number
<dbl>	<chr>	<dbl>	<chr>	<dbl>
1	AADIL	1983	84	3
1	AADIL	1992	92	3
1	AAHIL	2016	95	3
1	AARON	1962	75	3
1	AARON	1976	75	3
1	AARON	1982	75	3

We choose a random name : 'LUCIE'. To analyze its frequency in time, we have to clean the dataset a little, by removing any values which aren't numbers (such as NA).

In [5]:

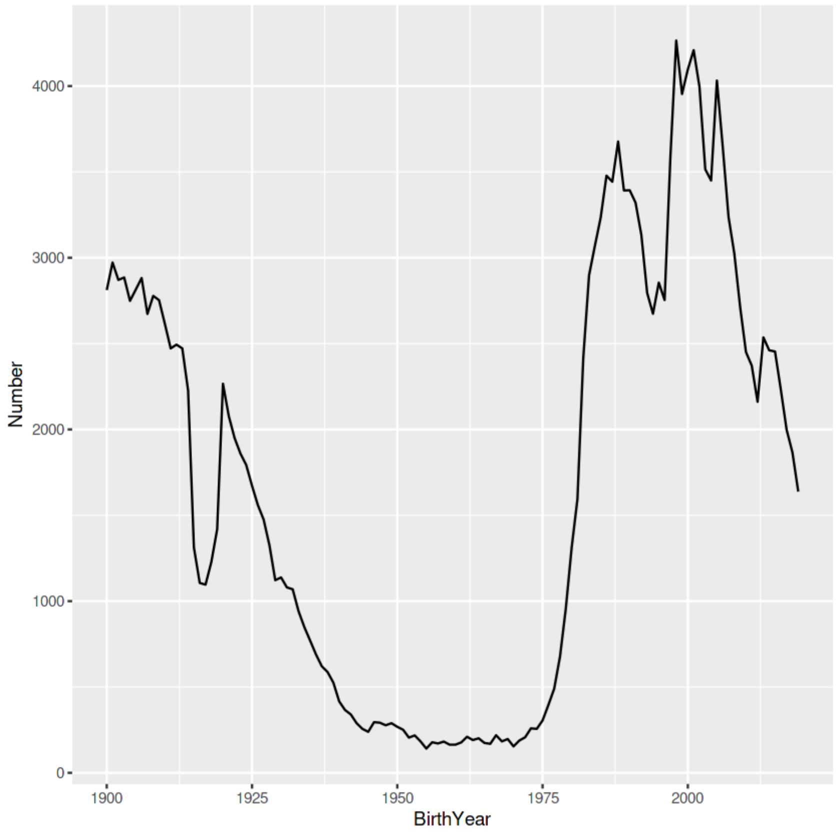
```
dist_names <- filter(FirstNames, FirstName =="LUCIE")
dist_names <- dist_names %>%
            group_by(BirthYear)%>%
            summarize(Number = sum(Number))
```

```
`summarise()` ungrouping output (override with `.groups` argument)
```

In [6]:

```
ggplot(data=dist_names, aes(x=BirthYear, y=Number)) + geom_line()
```

Out[6]:



The name Lucie has been popular both in the beginning of the 20th and the 21st centuries with a minimal popularity reached in the fifties and sixties of the 20th century.

Similarly, We can also analyze a masculine name like Michael.

In [7]:

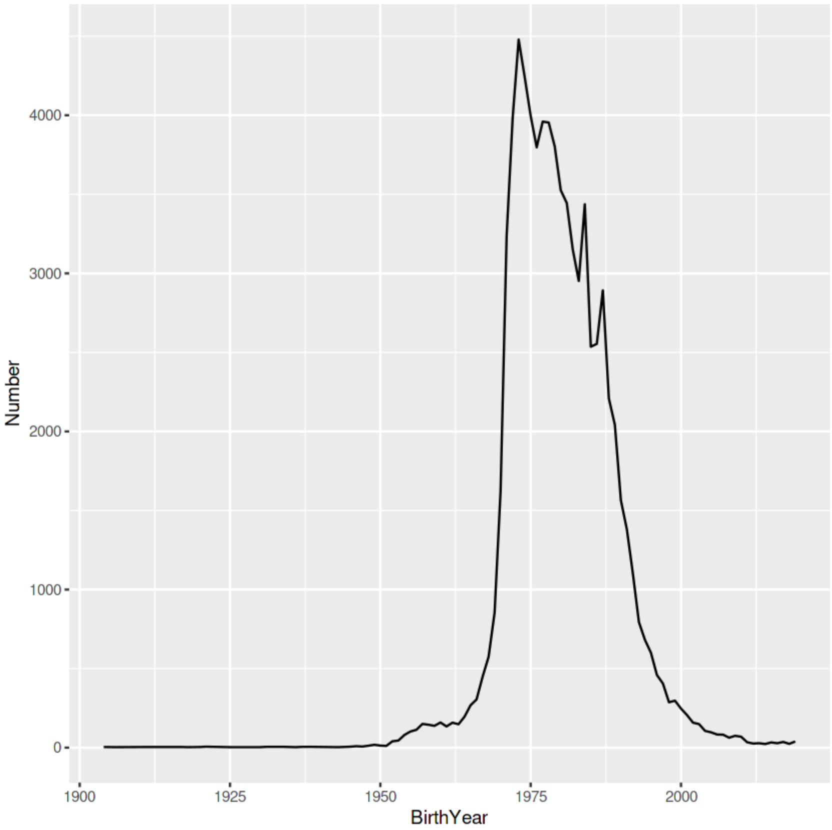
```
michael <- filter(FirstNames, FirstName =="MICHAEL")
michael <- michael %>%
            group_by(BirthYear)%>%
            summarize(Number = sum(Number))
```

```
`summarise()` ungrouping output (override with `.groups` argument)
```

In [8]:

```
ggplot(data=michael, aes(x=BirthYear, y=Number)) + geom_line()
```

Out[8]:



It has noticeably been very popular in the sixties and seventies but has drastically declined in popularity in the eighties and up to now.

We will now compare multiple names.

In [9]:

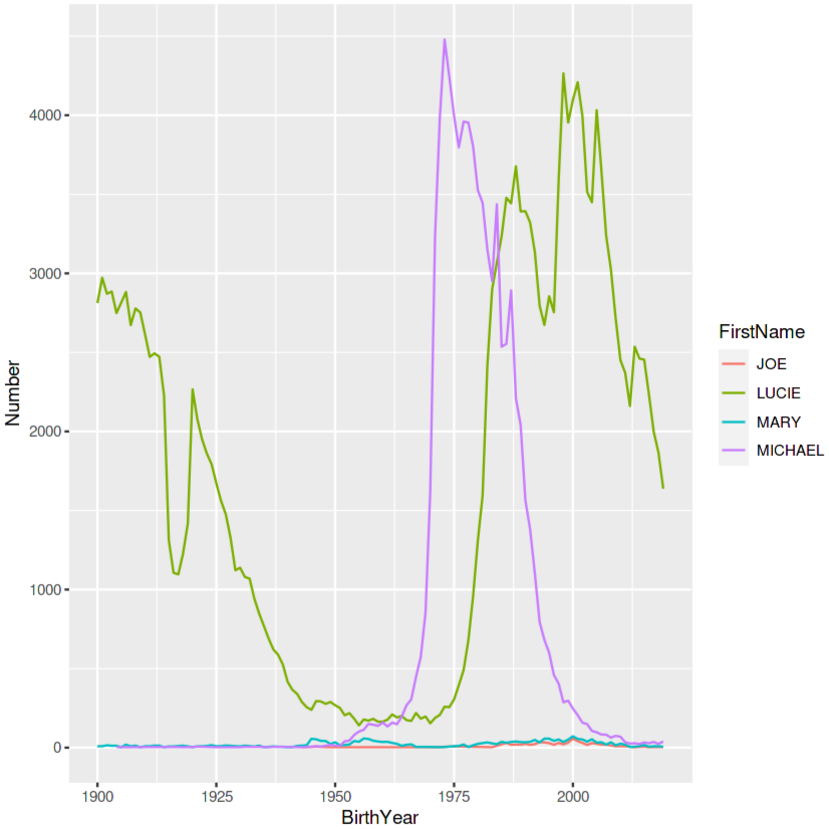
```
comparison <- filter(FirstNames, FirstName=="MICHAEL"|FirstName=="LUCIE"|FirstName=="MARY"|FirstName=="JOE")
comparison <- comparison %>%
            group_by(BirthYear, FirstName)%>%
            summarize(Number = sum(Number))
```

```
`summarise()` regrouping output by 'BirthYear' (override with `.groups` argument)
```

In [10]:

```
ggplot(data=comparison, aes(x=BirthYear, y=Number, color=FirstName)) + geom_line()
```

Out[10]:



Second question : Most given firstname by gender

We will analyze the most given first names per gender using the following code :

In [11]:

```
givenFirstM <- filter(FirstNames, Gender==1)
givenFirstM <-givenFirstM %>%
            group_by(BirthYear, FirstName)%>%
            summarize(Number = sum(Number))%>%
            group_by(BirthYear)
givenFirstM <- givenFirstM %>% top_n(1, Number)
```

```
`summarise()` regrouping output by 'BirthYear' (override with `.groups` argument)
```

In [12]:

```r
head(givenFirstM)
tail(givenFirstM)
```

Out[12]:

A grouped_df: 6 × 3

BirthYear	FirstName	Number
<dbl>	<chr>	<dbl>
1900	JEAN	14097
1901	JEAN	15632
1902	JEAN	16362
1903	JEAN	16533
1904	JEAN	16943
1905	JEAN	17997

Out[12]:

A grouped_df: 6 × 3

BirthYear	FirstName	Number
<dbl>	<chr>	<dbl>
2014	LUCAS	5471
2015	GABRIEL	5646
2016	GABRIEL	5871
2017	GABRIEL	5437
2018	GABRIEL	5421
2019	GABRIEL	4986

In [13]:

```r
givenFirstF <- filter(FirstNames, Gender==2)
givenFirstF <-givenFirstF %>%
            group_by(BirthYear, FirstName)%>%
            summarize(Number = sum(Number))%>%
                group_by(BirthYear)
givenFirstF <- givenFirstF %>% top_n(1, Number)
```

```
`summarise()` regrouping output by 'BirthYear' (override with `.groups` argument)
```

In [14]:

```
head(givenFirstF)
```

Out[14]:

A grouped_df: 6 × 3

BirthYear	FirstName	Number
<dbl>	<chr>	<dbl>
1900	MARIE	48713
1901	MARIE	52149
1902	MARIE	51857
1903	MARIE	50425
1904	MARIE	50131
1905	MARIE	48981

In [15]:

```
tail(givenFirstF)
```

Out[15]:

A grouped_df: 6 × 3

BirthYear	FirstName	Number
<dbl>	<chr>	<dbl>
2014	JADE	4691
2015	LOUISE	4543
2016	EMMA	4718
2017	EMMA	4811
2018	EMMA	4367
2019	EMMA	3943

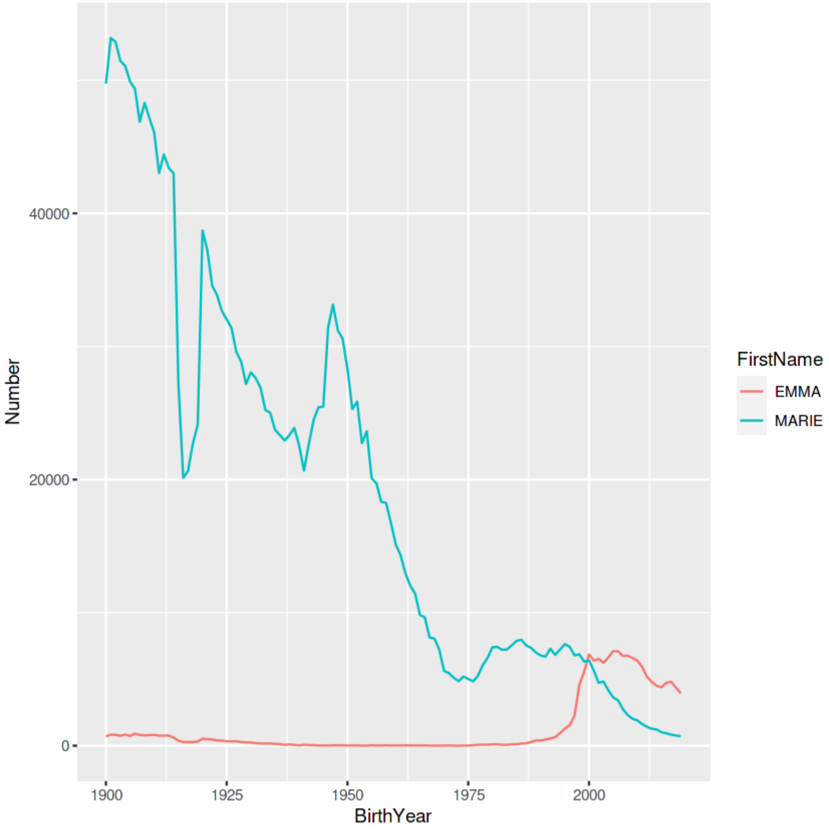
Given the results, we notice that Jean and Marie were the most popular names in the beginning of the 20th century, and Emma and Lucas in the 21st so Let's see how both opposites have evolved throughout time.

In [16]:

```
dist_names <- filter(FirstNames, FirstName =="MARIE"|FirstName=="EMMA")
dist_names <- dist_names %>%
            group_by(BirthYear, FirstName)%>%
            summarize(Number = sum(Number))
ggplot(data=dist_names, aes(x=BirthYear, y=Number, color=FirstName)) + geom_line()
```

```
`summarise()` regrouping output by 'BirthYear' (override with `.groups` argument)
```

Out[16]:

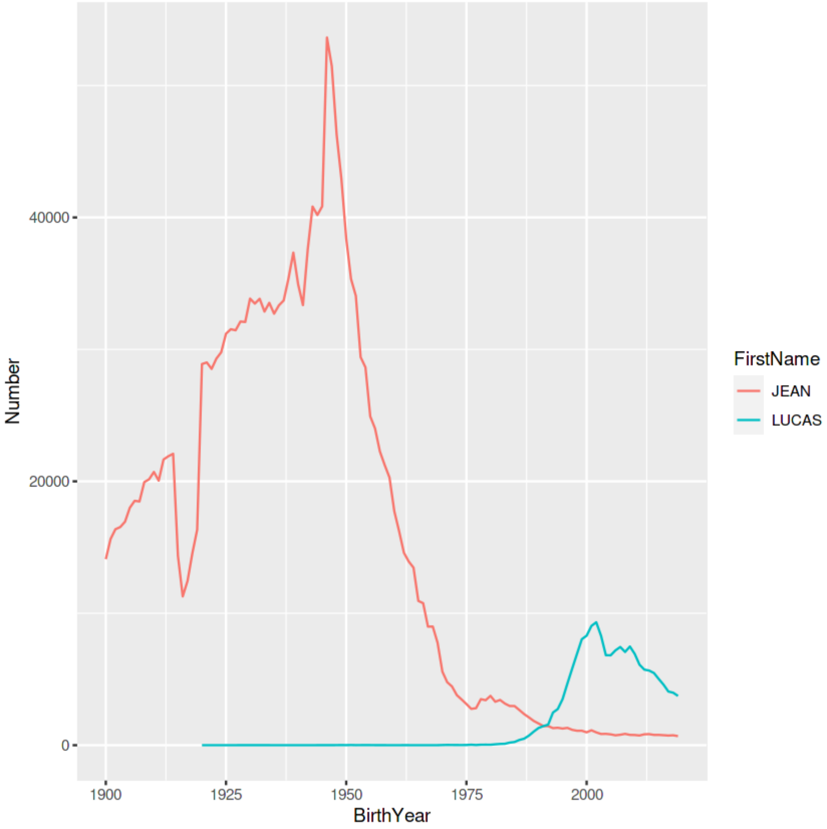


In [17]:

```
dist_names <- filter(FirstNames, FirstName =="JEAN"|FirstName=="LUCAS")
dist_names <- dist_names %>%
            group_by(BirthYear, FirstName)%>%
            summarize(Number = sum(Number))
ggplot(data=dist_names, aes(x=BirthYear, y=Number, color=FirstName)) + geom_line()
```

```
`summarise()` regrouping output by 'BirthYear' (override with `.groups` argument)
```

Out[17]:


Number
BirthYear
FirstName
JEAN
LUCAS