Hospital Length of Stays

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```
library(tidyverse)
library(NHSRdatasets)
library(knitr)
library(kableExtra)
library(tinytex)
```

Load the data from the package

```
data("LOS_model")
?LOS_model
```

Inspect

```
str(LOS_model)
```

```
## tibble [300 x 5] (S3: tbl_df/tbl/data.frame)
##  $ ID          : int [1:300] 1 2 3 4 5 6 7 8 9 10 ...
##  $ Organisation: Ord.factor w/ 10 levels "Trust1"<"Trust2"<..: 1 2 3 4 5 6 7 8 9 10 ...
##  $ Age         : int [1:300] 55 27 93 45 70 60 25 48 51 81 ...
##  $ LOS         : int [1:300] 2 1 12 3 11 7 4 4 7 1 ...
##  $ Death       : int [1:300] 0 0 0 1 0 0 0 0 1 0 ...
```

```
head(LOS_model)
```

```
## # A tibble: 6 x 5
##      ID Organisation   Age   LOS Death
##   <int> <ord>        <int> <int> <int>
## 1     1 Trust1          55     2     0
## 2     2 Trust2          27     1     0
## 3     3 Trust3          93    12     0
## 4     4 Trust4          45     3     1
## 5     5 Trust5          70    11     0
## 6     6 Trust6          60     7     0
```

```r
glimpse(LOS_model)
```

```
## Rows: 300
## Columns: 5
## $ ID           <int> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17~
## $ Organisation <ord> Trust1, Trust2, Trust3, Trust4, Trust5, Trust6, Trust7, T~
## $ Age          <int> 55, 27, 93, 45, 70, 60, 25, 48, 51, 81, 58, 16, 21, 82, 1~
## $ LOS          <int> 2, 1, 12, 3, 11, 7, 4, 4, 7, 1, 4, 3, 1, 9, 12, 1, 4, 3, ~
## $ Death        <int> 0, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, ~
```

Make Death a factor

```r
hospital_data <- LOS_model %>%
  mutate(Death = factor(Death))
```

Recode Death levels

```r
hospital_data <- hospital_data %>%
  mutate(Death = Death %>%
           fct_recode("Survived" = "0",
                      "Died" = "1"))
```

Create a summary table where each combination of Organisation and Death gets a count (n).

```r
hospital_data_summary <- hospital_data %>%
  group_by(Organisation, Death) %>%
  tally()
```

Make a wide table with Dead and Survived as rows with a column for each Trust

```r
hospital_data_wide <- hospital_data_summary %>%
  pivot_wider(
    names_from = Organisation,
    values_from = n
  )
```

Another pivot with Survived and Died as columns, Trusts as rows.

Also calculate the % survived for each Trust

```
hospital_data_wide_pretty <- hospital_data_summary %>%
  pivot_wider(
    names_from = Death,
    values_from = n
  ) %>%
  mutate(Total = Survived + Died,
         Percent_Survived = (Survived/Total)*100)
```

Make the wide table pretty with kable()

```
hospital_data_wide_pretty %>%
  kable(
    col.names = c("Trust","Survived", "Died", "Total", "Percent Survived"),
    digits = 0,
    caption = "Hospital Length of Stays Data: Perent Survived By Trust",
    align = "lcccc"
  )
```

Table 1: Hospital Length of Stays Data: Perent Survived By Trust

Trust	Survived	Died	Total	Percent Survived
Trust1	23	7	30	77
Trust2	25	5	30	83
Trust3	24	6	30	80
Trust4	26	4	30	87
Trust5	23	7	30	77
Trust6	26	4	30	87
Trust7	22	8	30	73
Trust8	25	5	30	83
Trust9	27	3	30	90
Trust10	26	4	30	87

```
#%>% knit to HTML
  #kable_styling("striped", full_width = FALSE) %>%
  #footnote("Data from LOS_model")
```

Let's knit to PDF