#我選擇以按讚率和分享率做觸及率的分析基準
#讀入資料
#利用 filter()分別篩選出 clicked_like=1 和 clicked_share=1 的建議文 tips 和工具文 shares，並得到各自的被點讚率和被分享率，進而再得到 tips 對 tools 的 likeprop(tips 超過 tools 大約 140.73%)和 shareprop(tips 超過 tools 大約 9.56%)
#建立 data.frame 進而畫出兩篇文章 like 和 share 數量的 boxplot，發現 tips 的 like 數量明顯比 tools 高、share 數量也略高於 tools
#基於上面兩點可推測 tips 的 like 和 share 都大於 tools，所以做假設檢定，H0:沒有差別，H1:tips>tools
#prop.test(I,III)得到 p-value 極小，因此有顯著差別，拒絕 H0，驗證得到 tips 的 like 大於 tools；prop.test(II,III)得到大的 p-value=0.1646，所以即使從 shareprop 和 share 的 boxplot 看起來 tips 都稍微大於 tools，檢定結果不顯著而無法拒絕 H0，無法得到 tips 的 share 大於 tools
#以上分析結論為該網紅的粉絲喜歡(like)tips 類文章，以後該網紅應該多寫 tips 相關文章可增加觸擊率

Code:

```
library(tidyverse)
fb <- read.csv("hw6-fb.csv")

tips_like <- nrow(fb %>%
                    filter(condition=="tips" & clicked_like=="1"))
tips_visitnum <- nrow(fb %>%
                        filter(condition=="tips"))
tips_likerate <- (tips_like/tips_visitnum)

tools_like <- nrow(fb %>%
                     filter(condition=="tools" & clicked_like=="1"))
tools_visitnum <- nrow(fb %>%
                         filter(condition=="tools"))
tools_likerate <- (tools_like/tools_visitnum)

likeprop <- (tips_likerate-tools_likerate)/tools_likerate*100
> likeprop <- (tips_likerate-tools_likerate)/tools_likerate*100
> likeprop
[1] 140.7336

tips_share <- nrow(fb %>%
```

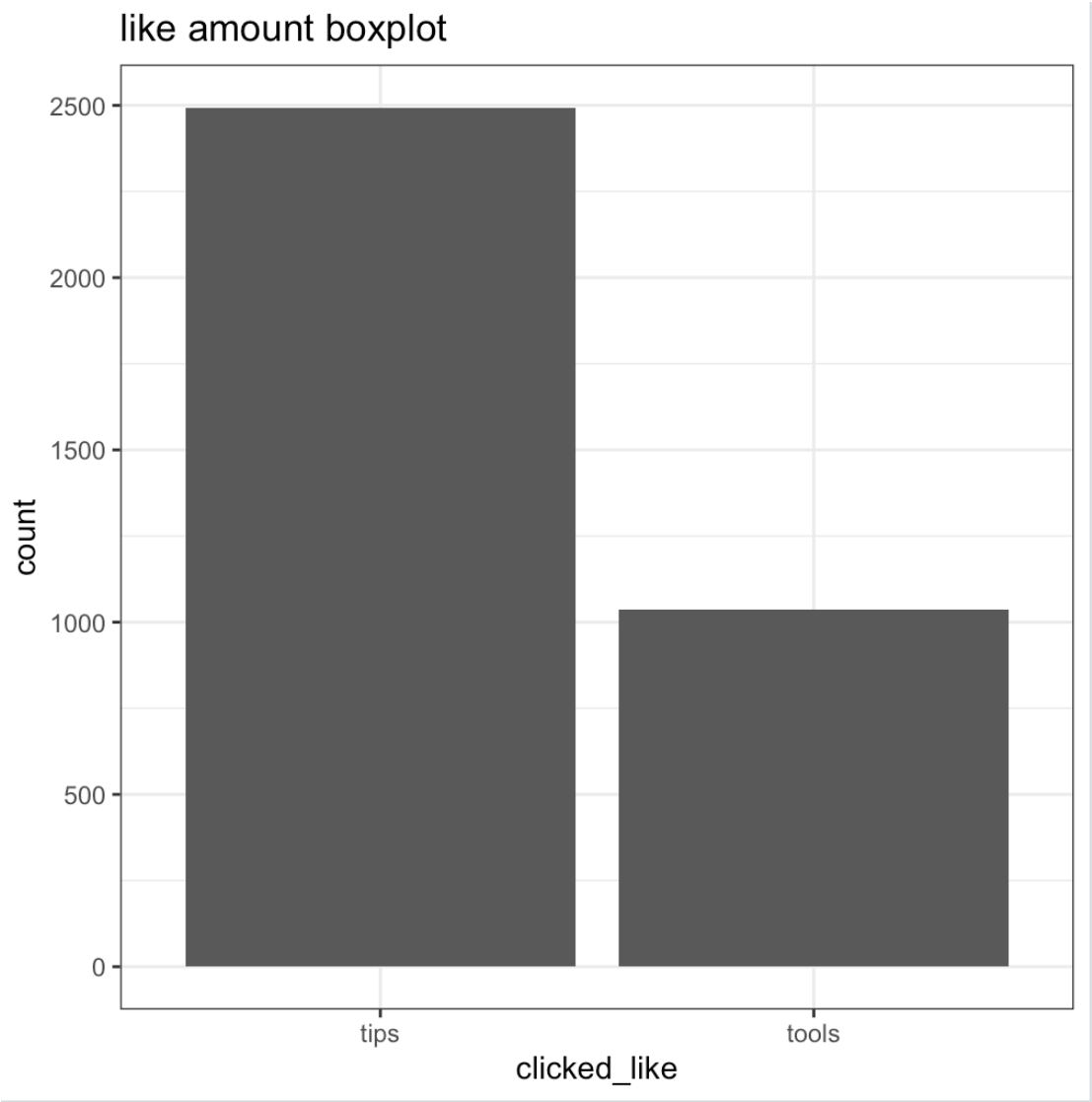
```
                              filter(condition=="tips" & clicked_share=="1"))
tips_sharerate <- (tips_share/tips_visitnum)
tools_share <- nrow(fb %>%
                              filter(condition=="tools" & clicked_share=="1"))
tools_sharerate <- (tools_share/tools_visitnum)
shareprop <- (tips_sharerate-tools_sharerate)/tools_sharerate*100
```

```
> shareprop <- (tips_sharerate-tools_sharerate)/tools_sharerate*100
> shareprop
[1] 9.555556
```

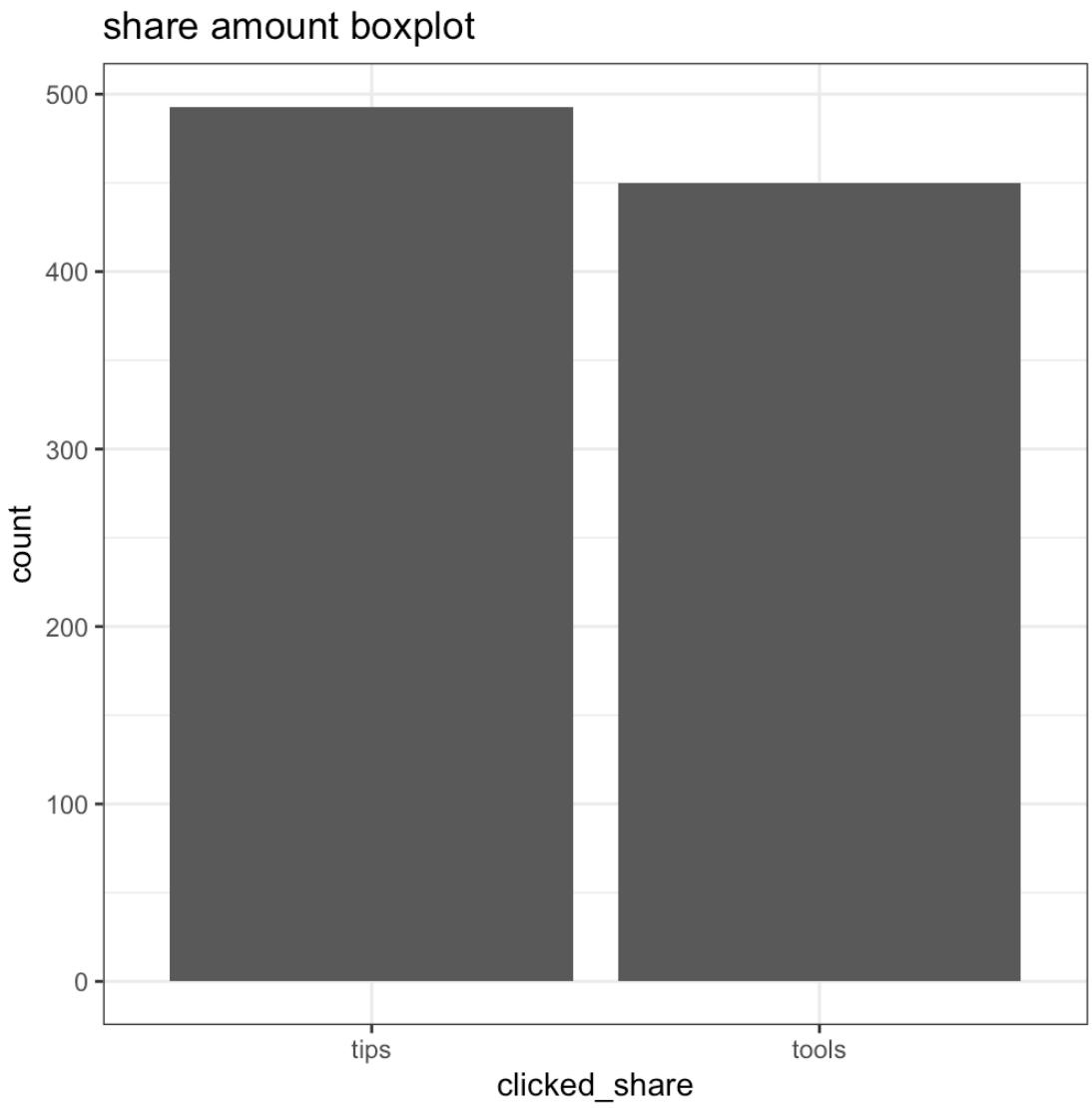
```
col1 <- c(tips_like,tools_like)
col2 <- c(tips_share,tools_share)
col3 <- c("tips","tools")
df <- data.frame("clicked_like"=col1,"clicked_share"=col2,"condition"=col3)
```

	clicked_like	clicked_share	condition
1	2494	493	tips
2	1036	450	tools

```
ggplot(df, aes(x=condition,y=clicked_like)) +
   geom_bar(position = "dodge",stat="identity") +
   xlab("clicked_like") +
   ylab("count") +
   ggtitle("like amount boxplot") +
   theme_bw()
```




```
ggplot(df, aes(x=condition,y=clicked_share)) +
    geom_bar(position = "dodge",stat="identity") +
    xlab("clicked_share") +
    ylab("count") +
    ggtitle("share amount boxplot") +
    theme_bw()
```



#假設檢定

```
library(pwr)
I=c(tips_like,tools_like)
II=c(tips_share,tools_share)
III=c(tips_visitnum,tools_visitnum)
prop.test(I,III)
```

```
        2-sample test for equality of proportions with continuity correction

data:  I out of III
X-squared = 681.57, df = 1, p-value < 2.2e-16
alternative hypothesis: two.sided
95 percent confidence interval:
 0.08992453 0.10447547
sample estimates:
    prop 1     prop 2
0.16626667 0.06906667
```

prop.test(II,III)

```
        2-sample test for equality of proportions with continuity correction

data:  II out of III
X-squared = 1.9313, df = 1, p-value = 0.1646
alternative hypothesis: two.sided
95 percent confidence interval:
 -0.001148779  0.006882112
sample estimates:
    prop 1     prop 2
0.03286667 0.03000000
```