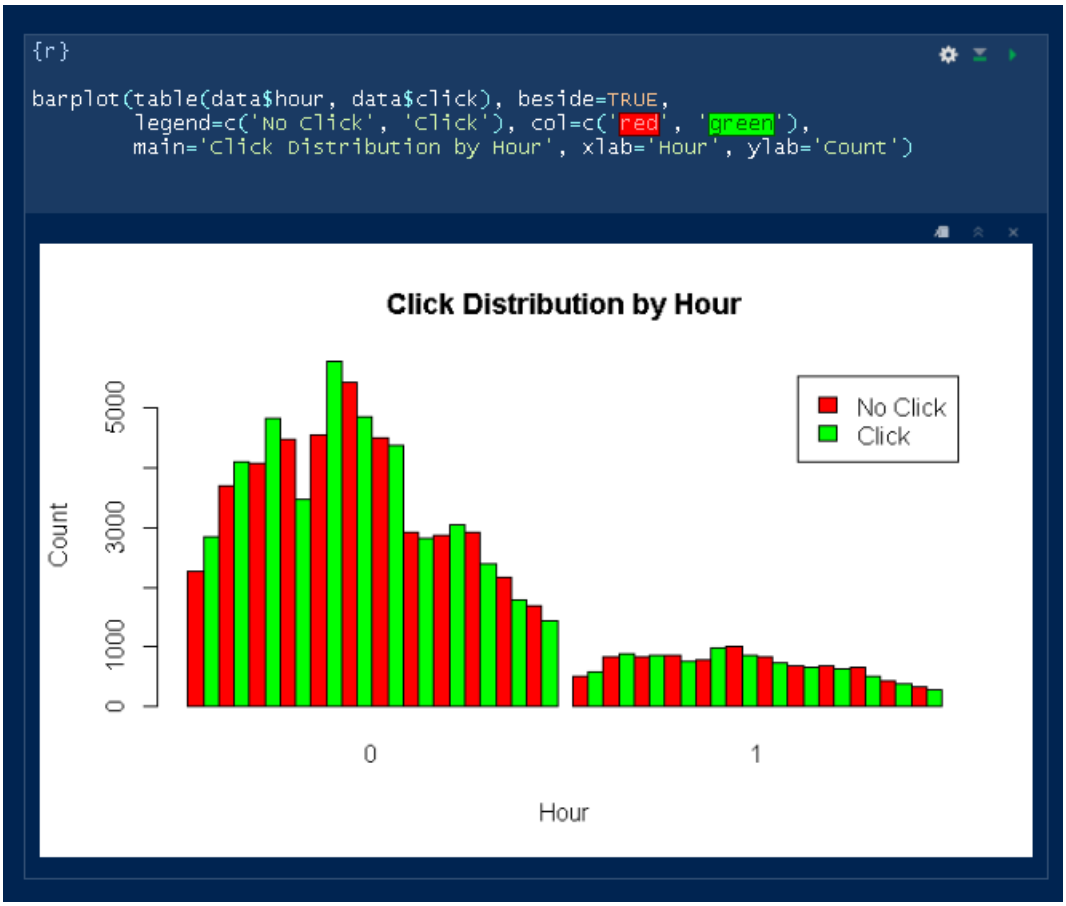
Additional code:

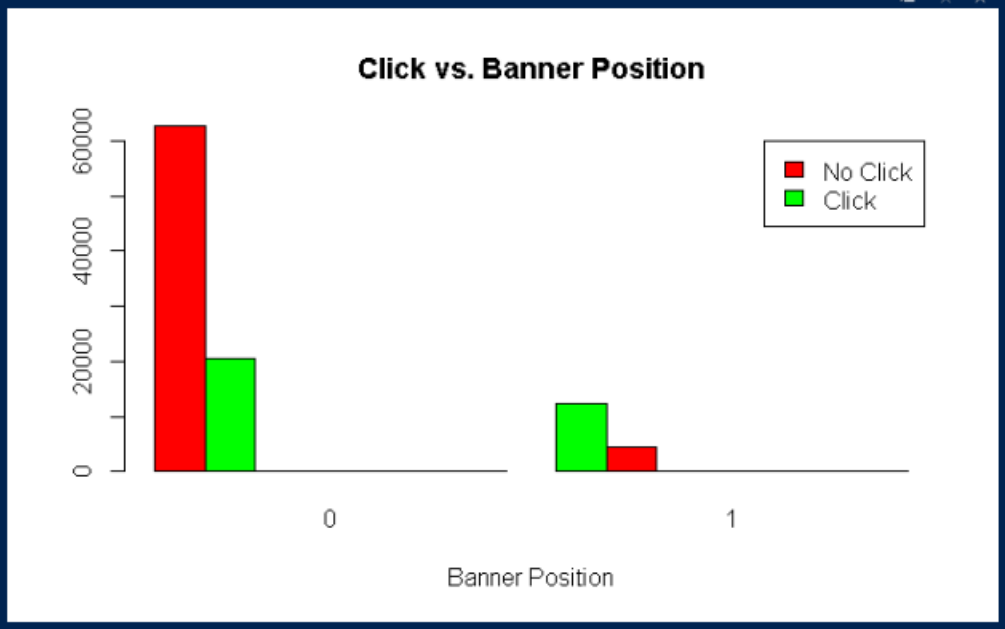
```
#Click Distribution by Hour

barplot(table(data$hour, data$click), beside=TRUE,
        legend=c('No Click', 'Click'), col=c('red', 'green'),
        main='Click Distribution by Hour', xlab='Hour', ylab='Count')

Click vs. Banner Position

click_by_banner <- table(data$banner_pos, data$click)
barplot(click_by_banner, beside=TRUE, legend=c("No Click", "Click"),
        main="Click vs. Banner Position", xlab="Banner Position", col=c("red", "green"))



#Clicks by Device Type

click_count <- df %>%
  group_by(device_type, click) %>%
  summarise(count = n())

ggplot(click_count, aes(x = device_type, y = count, fill = factor(click))) +
  geom_bar(stat = "identity", position = "dodge") +
  labs(title = "Clicks by Device Type", x = "Device Type", y = "Count") +
  scale_fill_manual(values = c("0" = "blue", "1" = "red")) +
  theme_minimal()
```

```
# Click vs. Site Category

click_by_site_category <- table(data$site_category, data$click)
heatmap(click_by_site_category, Rowv=NA, Colv=NA, col=c("red", "green"),
        main="Click vs. Site Category", xlab="Click", ylab="Site Category")



# Conversion Rates by Device Category and Site Category

conversion_rates <- df %>%
  group_by(device_category, site_category) %>%
  summarise(conversion_rate = sum(click == 1) / n()) %>%
  ungroup()

ggplot(conversion_rates, aes(x = interaction(device_category, site_category), y = conversion_rate)) +
  geom_bar(stat = "identity", fill = "blue") +
  labs(title = "Conversion Rates by Device Category and Site Category", x = "Device and Site Category", y
= "Conversion Rate") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

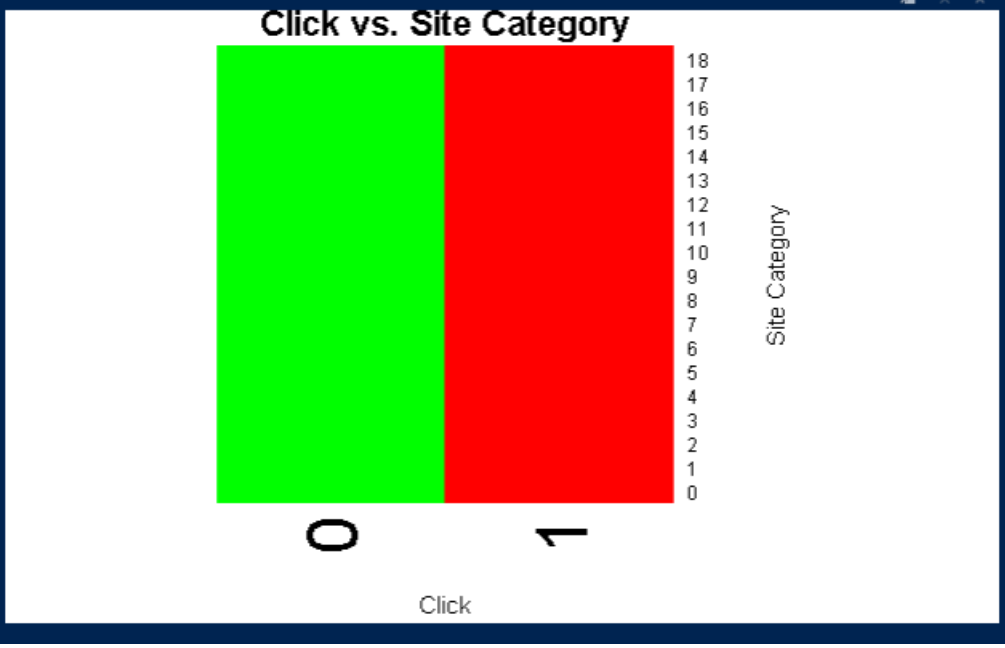
```r
barplot(table(data$hour, data$click), beside=TRUE,
        legend=c('No Click', 'Click'), col=c('red', 'green'),
        main='Click Distribution by Hour', xlab='Hour', ylab='Count')
```



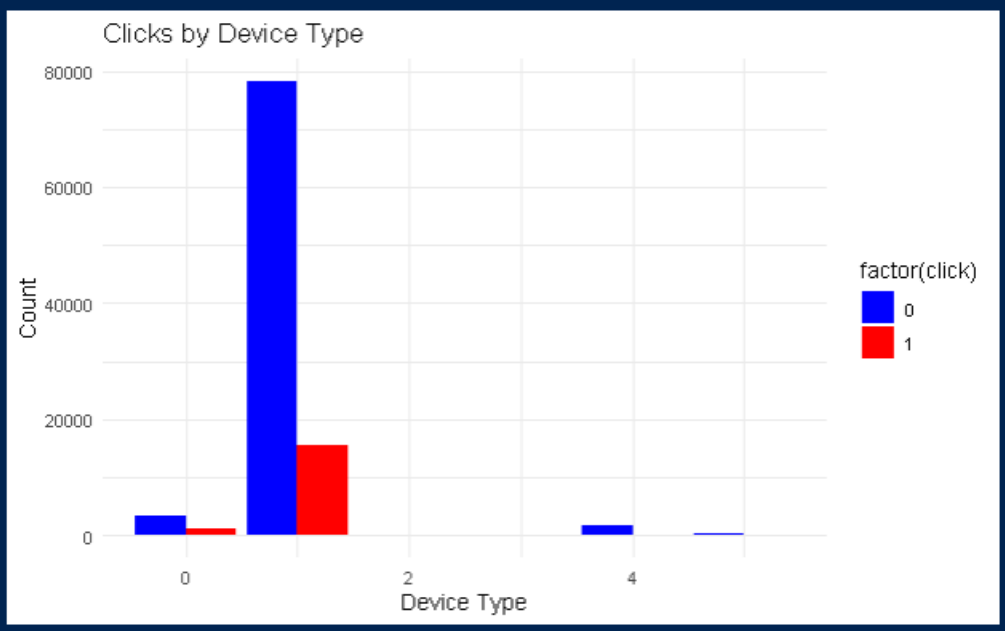
```r
click_by_banner <- table(data$banner_pos, data$click)
barplot(click_by_banner, beside=TRUE, legend=c("No Click", "Click"),
        main="Click vs. Banner Position", xlab="Banner Position", col=c("red",
"green"))
```



```r
click_by_site_category <- table(data$site_category, data$click)
heatmap(click_by_site_category, Rowv=NA, Colv=NA, col=c("red", "green"),
        main="Click vs. Site Category", xlab="Click", ylab="Site Category")
```



```r
library(ggplot2)

click_count <- df %>%
  group_by(device_type, click) %>%
  summarise(count = n())

ggplot(click_count, aes(x = device_type, y = count, fill = factor(click))) +
  geom_bar(stat = "identity", position = "dodge") +
  labs(title = "Clicks by Device Type", x = "Device Type", y = "Count") +
  scale_fill_manual(values = c("0" = "blue", "1" = "red")) +
  theme_minimal()
```



```r
{r}

conversion_rates <- df %>%
  group_by(device_category, site_category) %>%
  summarise(conversion_rate = sum(click == 1) / n()) %>%
  ungroup()

print(conversion_rates)

ggplot(conversion_rates, aes(x = interaction(device_category, site_category),
y = conversion_rate)) +
  geom_bar(stat = "identity", fill = "blue") +
  labs(title = "Conversion Rates by Device Category and Site Category", x =
"Device and Site Category", y = "Conversion Rate") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```