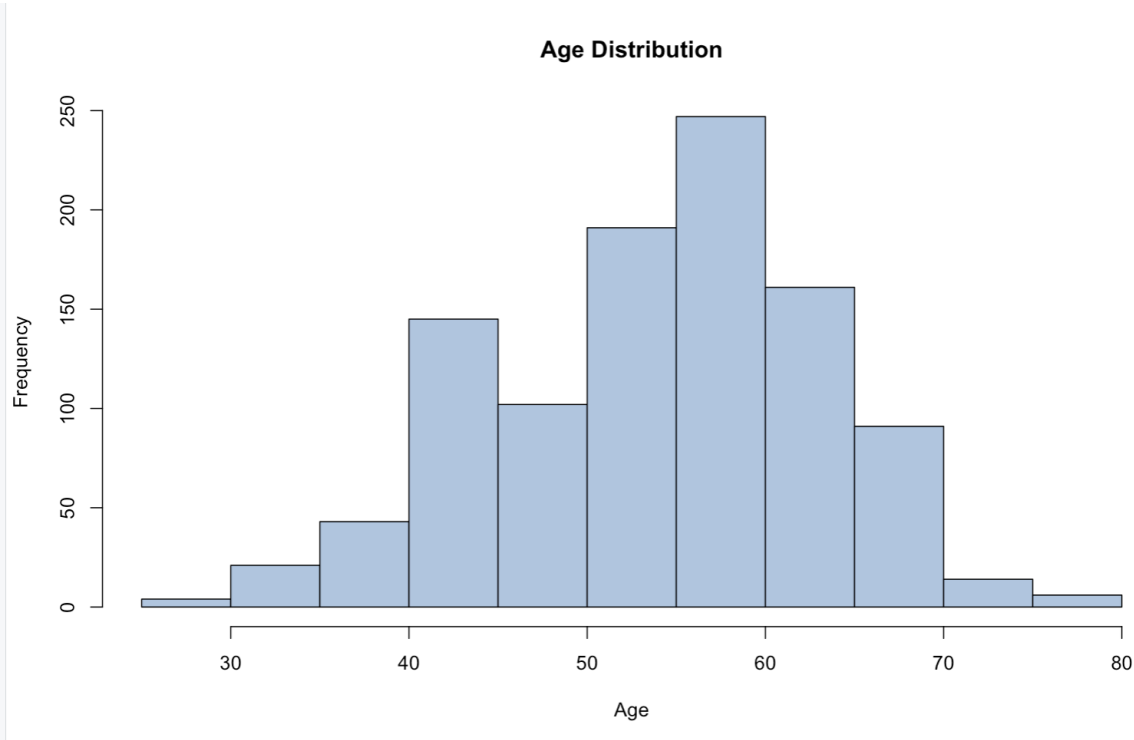
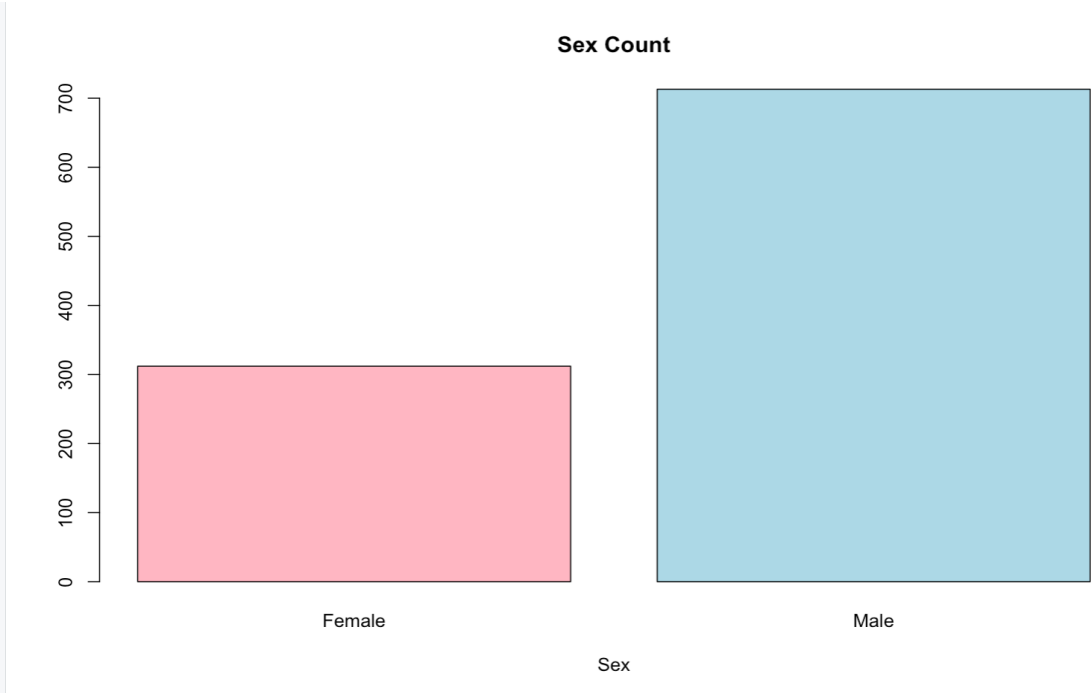


Task-1

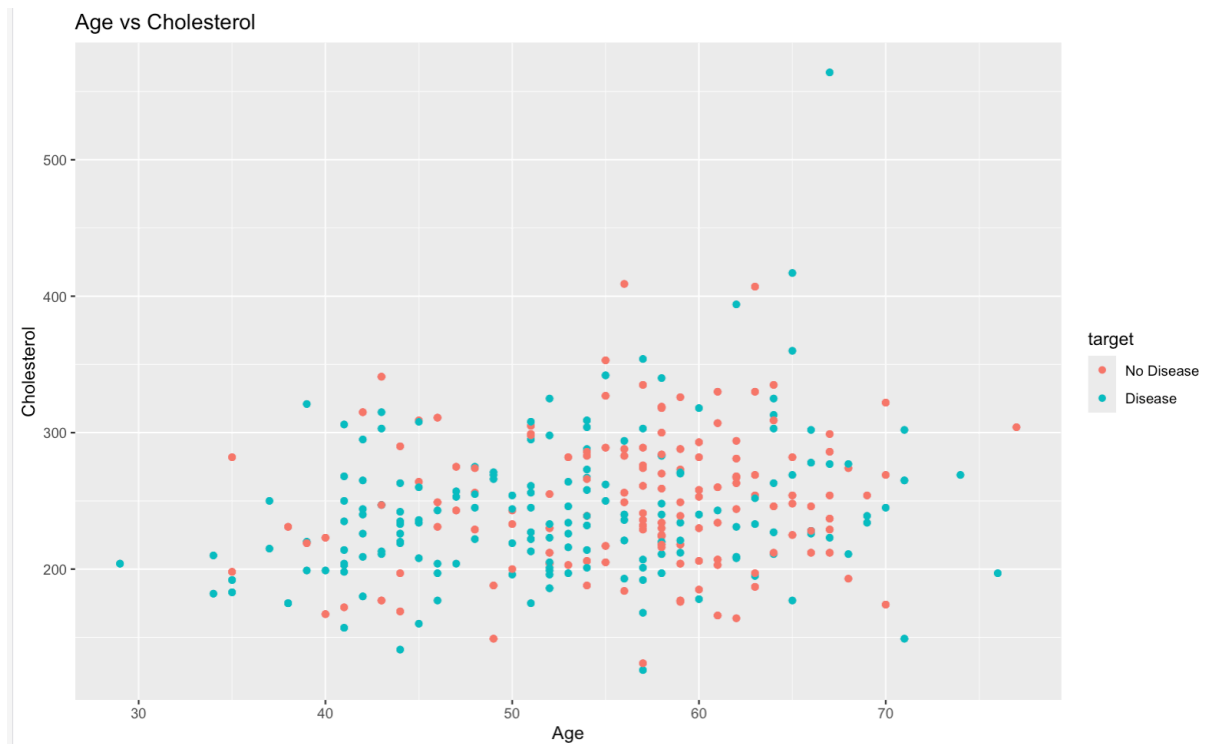
Histogram:



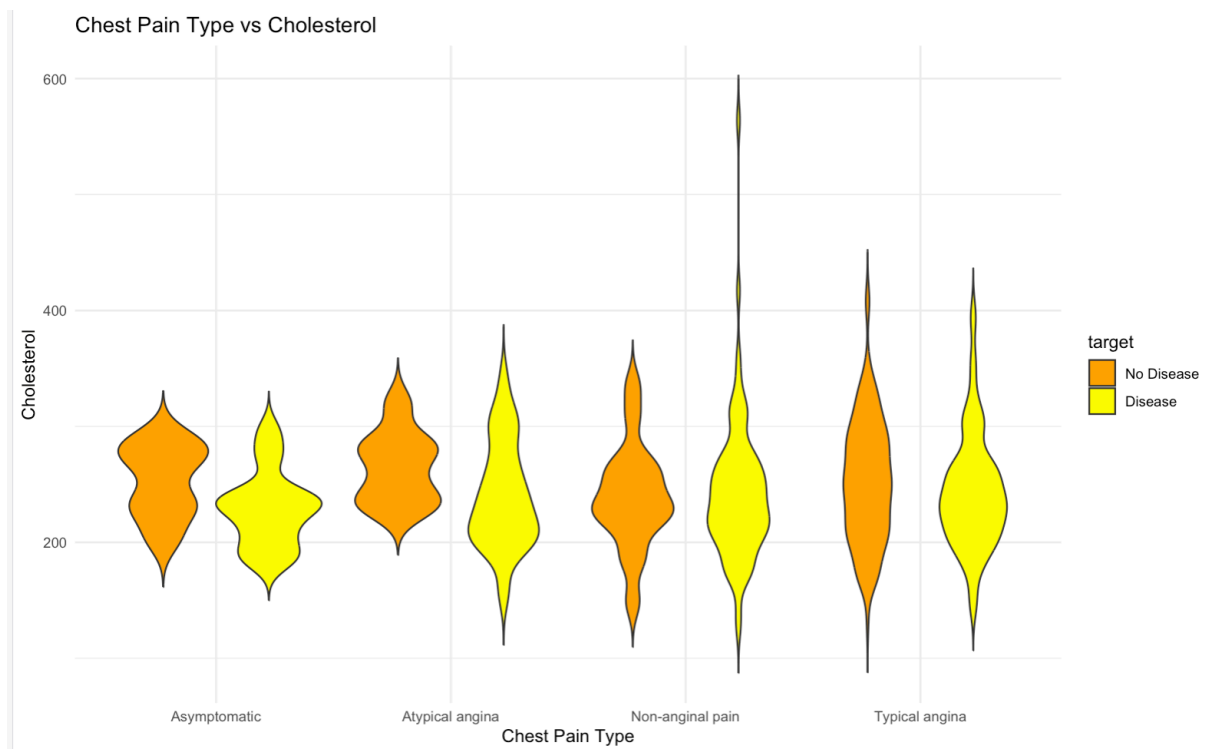
Bar Graphs:



Scatter plot:



Violin plot:



Task-2

Pearson Correlation:

```
>
> cat("Pearson Correlation:")
Pearson Correlation:> print(cor.test(heart$age, heart$target_num))

Pearson's product-moment correlation

data: heart$age and heart$target_num
t = -7.5356, df = 1023, p-value = 1.068e-13
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.2865322 -0.1704854
sample estimates:
      cor
-0.2293236

> print(cor.test(heart$chol, heart$target_num))

Pearson's product-moment correlation

data: heart$chol and heart$target_num
t = -3.2134, df = 1023, p-value = 0.001353
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.16021697 -0.03897207
sample estimates:
      cor
-0.09996559

> |
```

Anova:

```
> cat("\nANOVA :\n")

ANOVA :
> print(summary(aov(target_num ~ sex, data = heart)))
              Df Sum Sq Mean Sq F value Pr(>F)
sex              1   20.0   20.005    86.69 <2e-16 ***
Residuals     1023  236.1    0.231
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

> print(summary(aov(target_num ~ cp, data = heart)))
              Df Sum Sq Mean Sq F value Pr(>F)
cp              3   70.2   23.399   128.5 <2e-16 ***
Residuals     1021  185.9    0.182
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

> |
```

Chi-Squared:

```
> cat("\nChi-Squared :\n")

Chi-Squared :
> print(chisq.test(heart$sex, heart$target, correct = FALSE))

    Pearson's Chi-squared test

data:  heart$sex and heart$target
X-squared = 80.074, df = 1, p-value < 2.2e-16

> print(chisq.test(heart$cp, heart$target, correct = FALSE))

    Pearson's Chi-squared test

data:  heart$cp and heart$target
X-squared = 280.98, df = 3, p-value < 2.2e-16

> |
```

Mutual Information:

```
Mutual Information:
> print(mutinformation(heart$age_disc, heart$target))
[1] 0.04830124
> print(mutinformation(heart$sex, heart$target))
[1] 0.04019155
> print(mutinformation(heart$cp, heart$target))
[1] 0.1445102
> print(mutinformation(heart$chol_disc, heart$target))
[1] 0.01024603
> |
```