

Practice Exam 2 Output

ECO 230: Business and Economic Research and Communication

Age and Overall Job Satisfaction

```
cor.test(df$Age, df$Satisfaction, method="pearson", alternative="two.sided")
```

```
##  
## Pearson's product-moment correlation  
##  
## data: df$Age and df$Satisfaction  
## t = 2.3812, df = 213, p-value = 0.01814  
## alternative hypothesis: true correlation is not equal to 0  
## 95 percent confidence interval:  
## 0.02782305 0.28861246  
## sample estimates:  
## cor  
## 0.1610272
```

```
cor.test(df$Age, df$Satisfaction, method="spearman", alternative="two.sided")
```

```
## Warning in cor.test.default(df$Age, df$Satisfaction, method = "spearman", :  
## Cannot compute exact p-value with ties
```

```
##  
## Spearman's rank correlation rho  
##  
## data: df$Age and df$Satisfaction  
## S = 1426300, p-value = 0.04192  
## alternative hypothesis: true rho is not equal to 0  
## sample estimates:  
## rho  
## 0.1388745
```

```
lm(Satisfaction ~ Age, data=df)
```

```
##  
## Call:  
## lm(formula = Satisfaction ~ Age, data = df)  
##  
## Coefficients:  
## (Intercept) Age  
## 60.5145 0.1529
```

```
lm(Age ~ Satisfaction, data=df)
```

```
##  
## Call:  
## lm(formula = Age ~ Satisfaction, data = df)  
##  
## Coefficients:  
## (Intercept) Satisfaction  
## 24.7413 0.1696
```

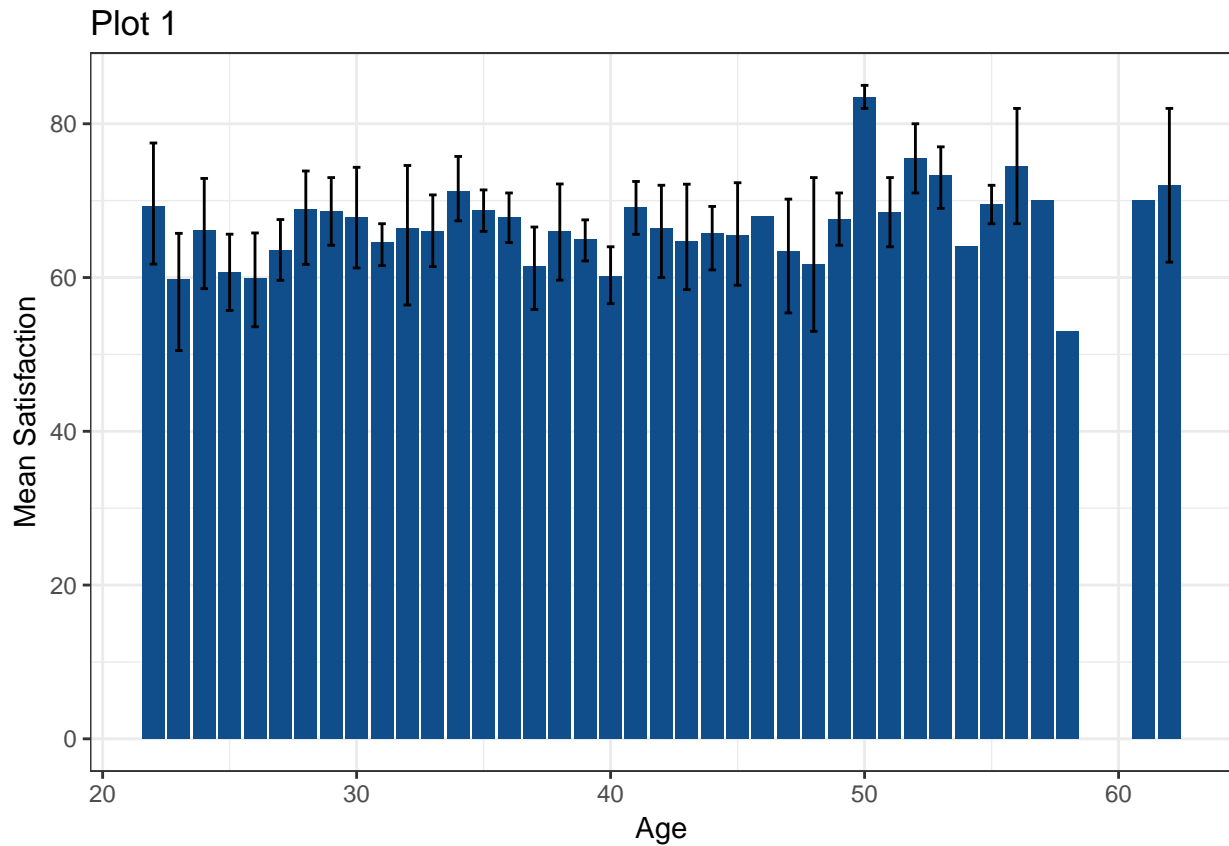
Plot 1

```
ggplot(df, aes(x=Age, y=Satisfaction)) +  
  stat_summary(fun.data=mean_sdl, geom="bar", fill="dodgerblue4") +  
  stat_summary(fun.data=mean_cl_boot, geom="errorbar", width=0.3) +  
  labs(x="Age", y="Mean Satisfaction",  
       title="Plot 1") +  
  theme_bw()
```

```
## Warning: Removed 3 rows containing non-finite values (stat_summary).
```

```
## Warning: Removed 3 rows containing non-finite values (stat_summary).
```

```
## Warning: Removed 5 rows containing missing values (geom_errorbar).
```

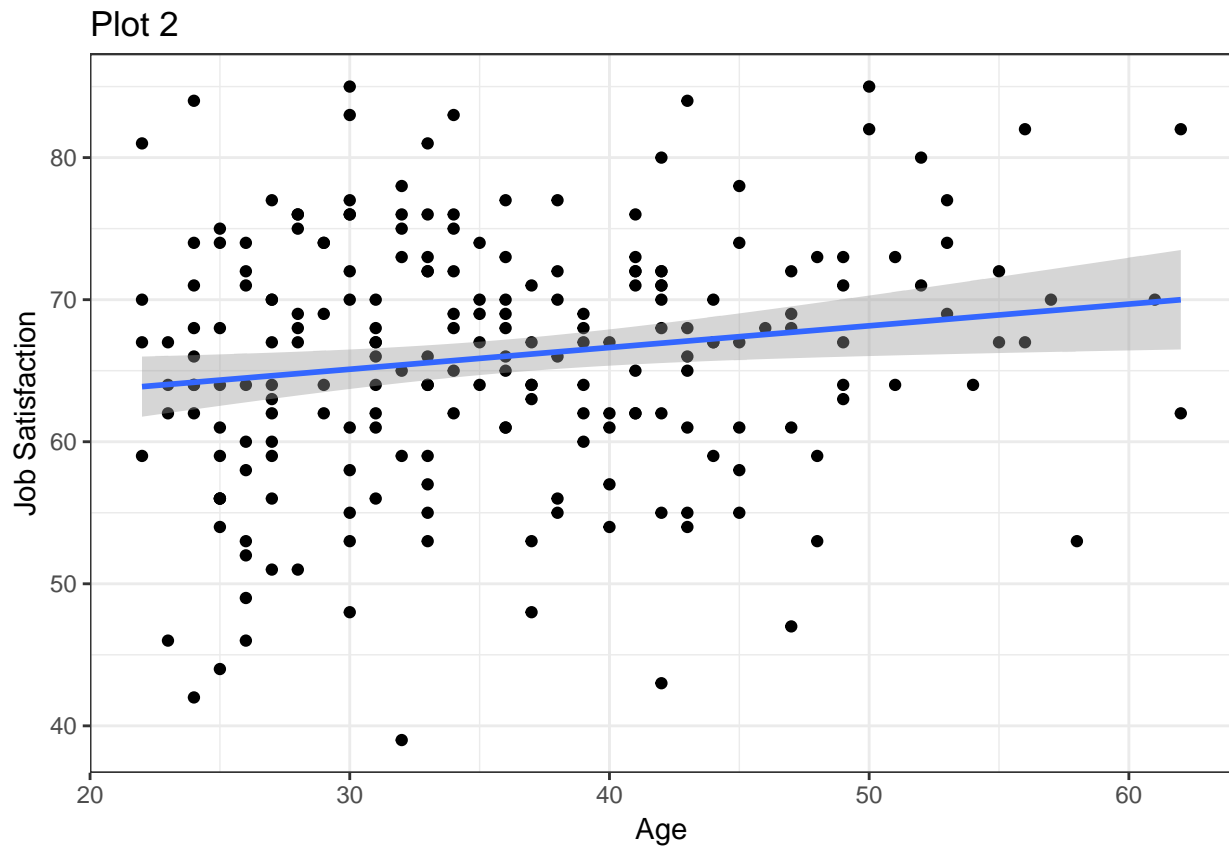


Plot 2

```
ggplot(df, aes(x=Age, y=Satisfaction)) +  
  geom_point() +  
  stat_smooth(method="lm") +  
  labs(x="Age", y="Job Satisfaction",  
       title="Plot 2") +  
  theme_bw()
```

Warning: Removed 3 rows containing non-finite values (stat_smooth).

Warning: Removed 3 rows containing missing values (geom_point).

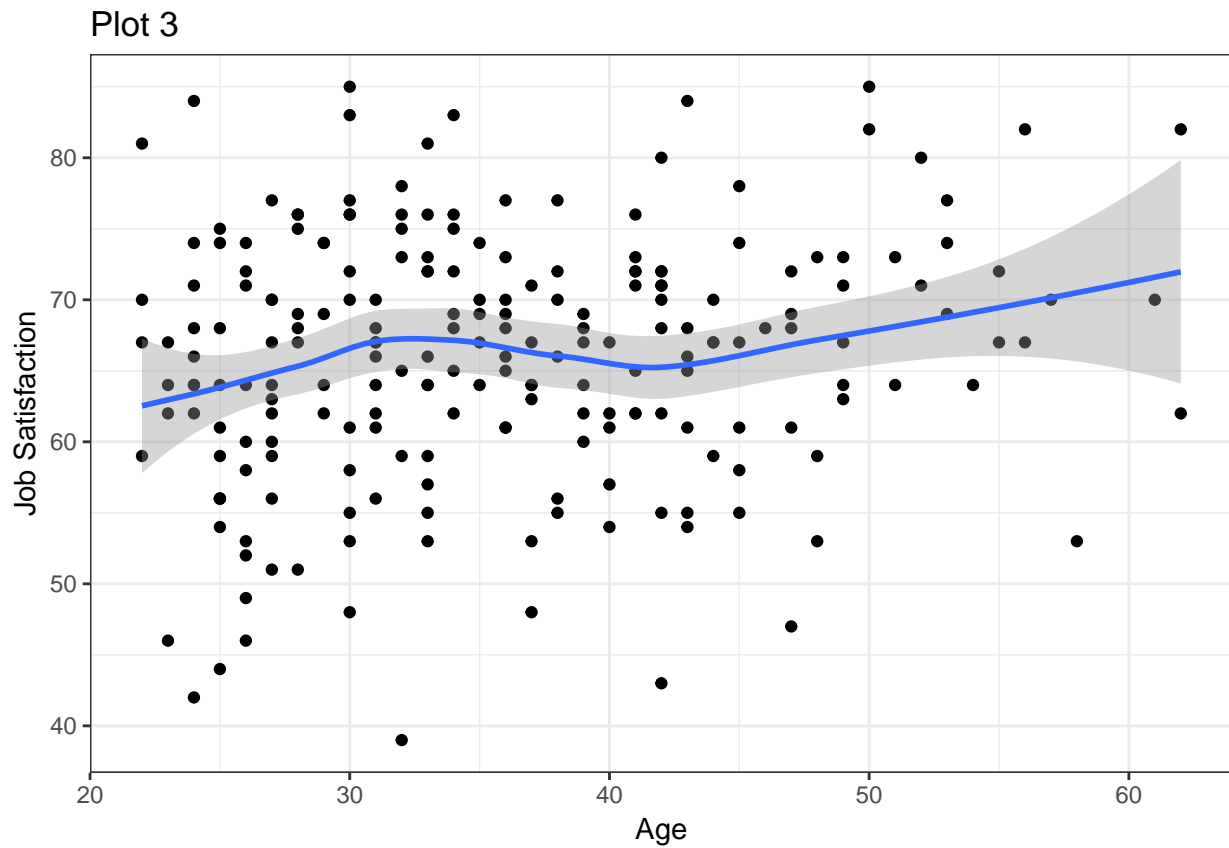


Plot 3

```
ggplot(df, aes(x=Age, y=Satisfaction)) +  
  geom_point() +  
  stat_smooth(method="loess") +  
  labs(x="Age", y="Job Satisfaction",  
       title="Plot 3") +  
  theme_bw()
```

Warning: Removed 3 rows containing non-finite values (stat_smooth).

Warning: Removed 3 rows containing missing values (geom_point).



Education and Job Satisfaction

```
cor.test(df$Satisfaction, as.numeric(df$Education),
         method="pearson", alternative="two.sided")
```

```
##
## Pearson's product-moment correlation
##
## data: df$Satisfaction and as.numeric(df$Education)
## t = 1.9426, df = 216, p-value = 0.05337
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.001875722  0.259396391
## sample estimates:
##      cor
## 0.1310349
```

```
cor.test(df$Satisfaction, as.numeric(df$Education),
         method="spearman", alternative="two.sided")
```

```
## Warning in cor.test.default(df$Satisfaction, as.numeric(df$Education),
## method = "spearman", : Cannot compute exact p-value with ties
```

```
##
## Spearman's rank correlation rho
##
## data: df$Satisfaction and as.numeric(df$Education)
## S = 1501500, p-value = 0.05453
## alternative hypothesis: true rho is not equal to 0
## sample estimates:
##      rho
## 0.1304091
```

```
df %>%
  group_by(Education) %>%
  summarise(mean(Satisfaction, na.rm=TRUE))
```

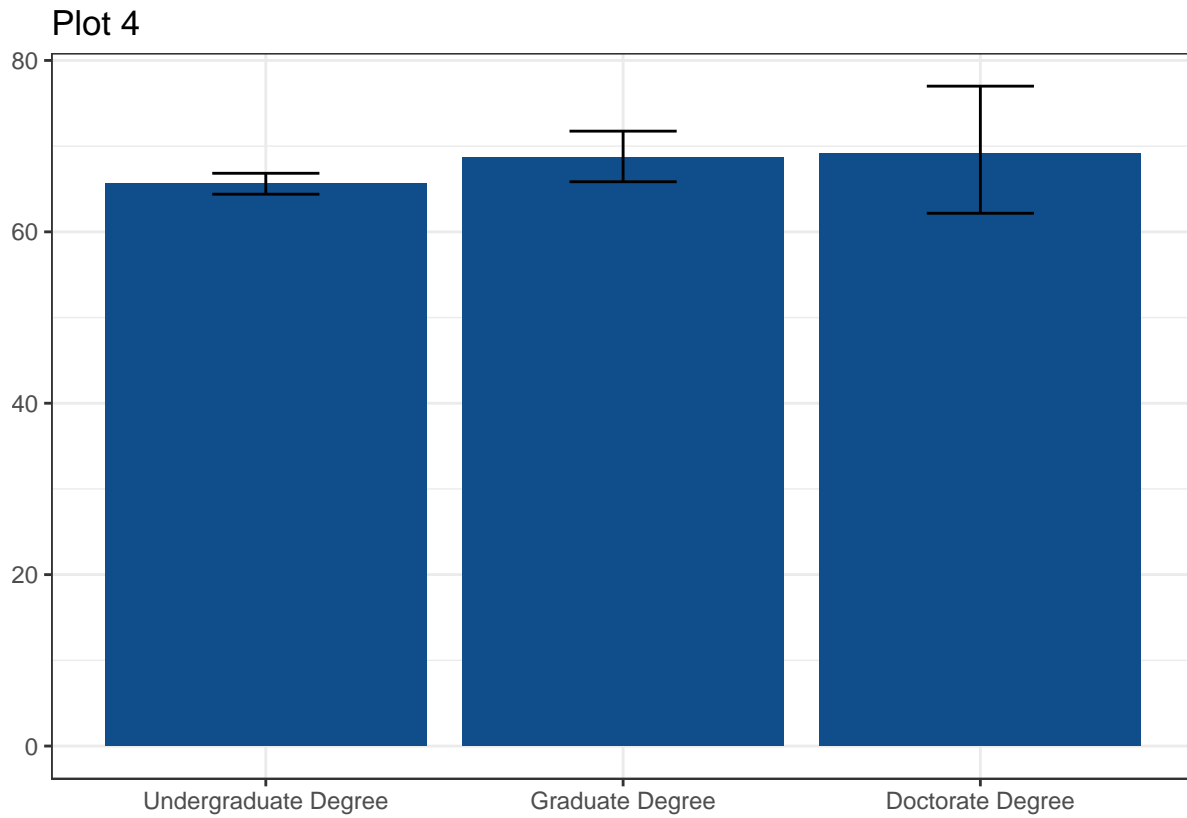
```
## # A tibble: 3 x 2
##   Education      `mean(Satisfaction, na.rm = TRUE)`
##   <fct>          <dbl>
## 1 Undergraduate Degree      65.6
## 2 Graduate Degree          68.7
## 3 Doctorate Degree         69.2
```

```
df %>%
  group_by(Education) %>%
  summarise(interp.median(Satisfaction, na.rm=TRUE))
```

```
## # A tibble: 3 x 2
##   Education      `interp.median(Satisfaction, na.rm = TRUE)`
##   <fct>          <dbl>
## 1 Undergraduate Degree      66.6
## 2 Graduate Degree          68.5
## 3 Doctorate Degree         66.5
```

Plot 4

```
ggplot(df, aes(x=Education, y=Satisfaction)) +  
  stat_summary(fun.data=mean_sdl, geom="bar", fill="dodgerblue4") +  
  stat_summary(fun.data=mean_cl_boot, geom="errorbar", width=0.3) +  
  theme_bw() +  
  labs(x="", y="", title="Plot 4")
```



Plot 5

```
ggplot(df, aes(x=Education, y=Satisfaction)) +  
  stat_summary(fun.data=imedian_sdl, geom="bar", fill="dodgerblue4") +  
  stat_summary(fun.data=imedian_cl_boot, geom="errorbar", width=0.3) +  
  theme_bw() +  
  labs(x="", y="", title="Plot 5")
```

