Week 01 solutions

2023-02-08

1. Fish oil.

```
fish_diet <- c(9, 12, 10, 14, 2, 0, 0)
norm_diet <- c(-6, 0, 1, 2, -3, -4, 2)
delta <- fish_diet - norm_diet
t.test(delta)
```

```
##
##  One Sample t-test
##
## data:  delta
## t = 3.5404, df = 6, p-value = 0.01221
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##   2.426779 13.287507
## sample estimates:
## mean of x
##  7.857143
```

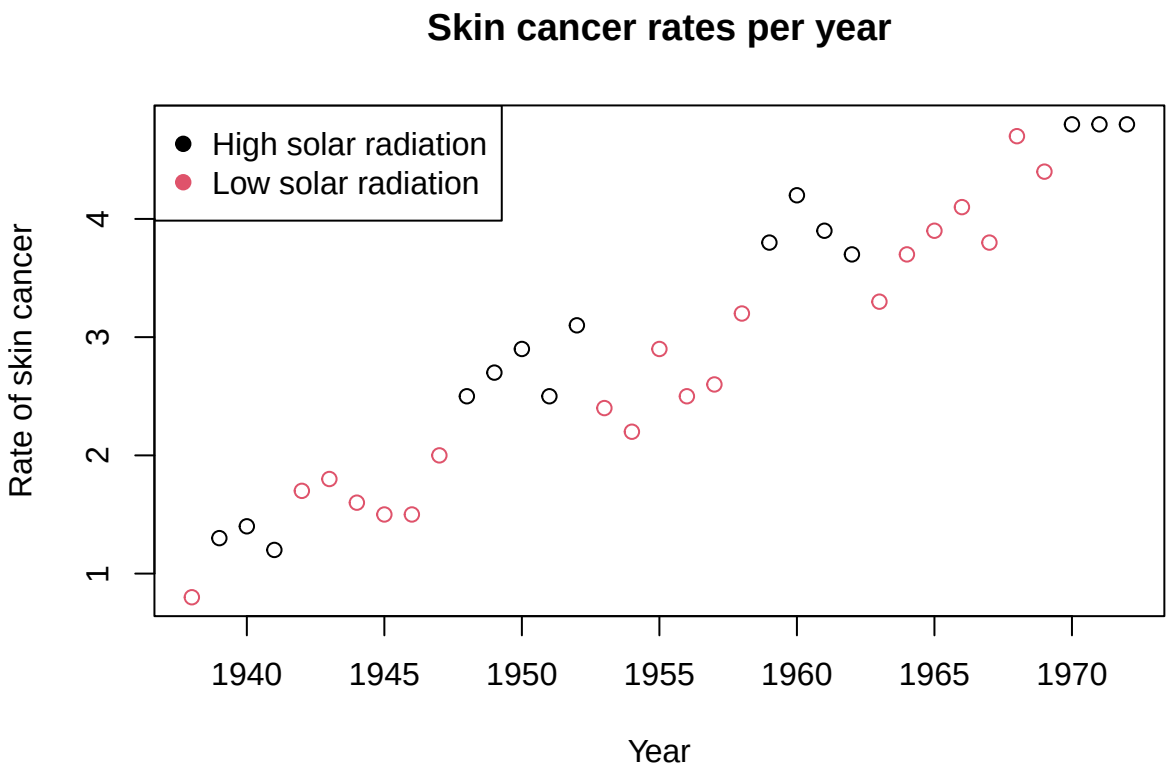
The p-value is very low (0.01221), which tells us that the probability that random chance lead to the observation is very low.

2. Solar radiation

```
sun_data <- read.csv('data/SolarRadiationSkinCancer.csv')

# Plot
plot(sun_data$Year, sun_data$CancerRate,
     main="Skin cancer rates per year",
     col=factor(sun_data$SunspotActivity),
     xlab="Year", ylab="Rate of skin cancer"
)

# Legend
legend("topleft",
       legend=paste(levels(factor(sun_data$SunspotActivity)),
       "solar radiation"),
       pch=19,
       col=factor(levels(factor(sun_data$SunspotActivity)))
)
```


Skin cancer rates per year
High solar radiation
Low solar radiation
Rate of skin cancer
1
2
3
4
1940
1945
1950
1955
1960
1965
1970
Year