R2

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```
library(dplyr)
library(readr)
library(lubridate)
library(ggplot2)
```

```
Athens <- read_csv("http://www.richardtwatson.com/data/SolarRadiationAthens.csv")
```

```
## Parsed with column specification:
## cols(
##   TimeStamp = col_datetime(format = ""),
##   SolarWatt = col_double()
## )
```

```
electricityprices <- read_csv("http://www.richardtwatson.com/data/electricityprices.csv")
```

```
## Parsed with column specification:
## cols(
##   timestamp = col_datetime(format = ""),
##   cost = col_double()
## )
```

```
ATLweather <- read_csv("http://www.richardtwatson.com/data/ATLweather.csv")
```

```
## Parsed with column specification:
## cols(
##   Timestamp = col_datetime(format = ""),
##   Temperature = col_double(),
##   Humidity = col_double(),
##   Precipitation = col_double()
## )
```

```
weather_prices <- inner_join(ATLweather, electricityprices,by=c("Timestamp" = 'timestamp'))
```

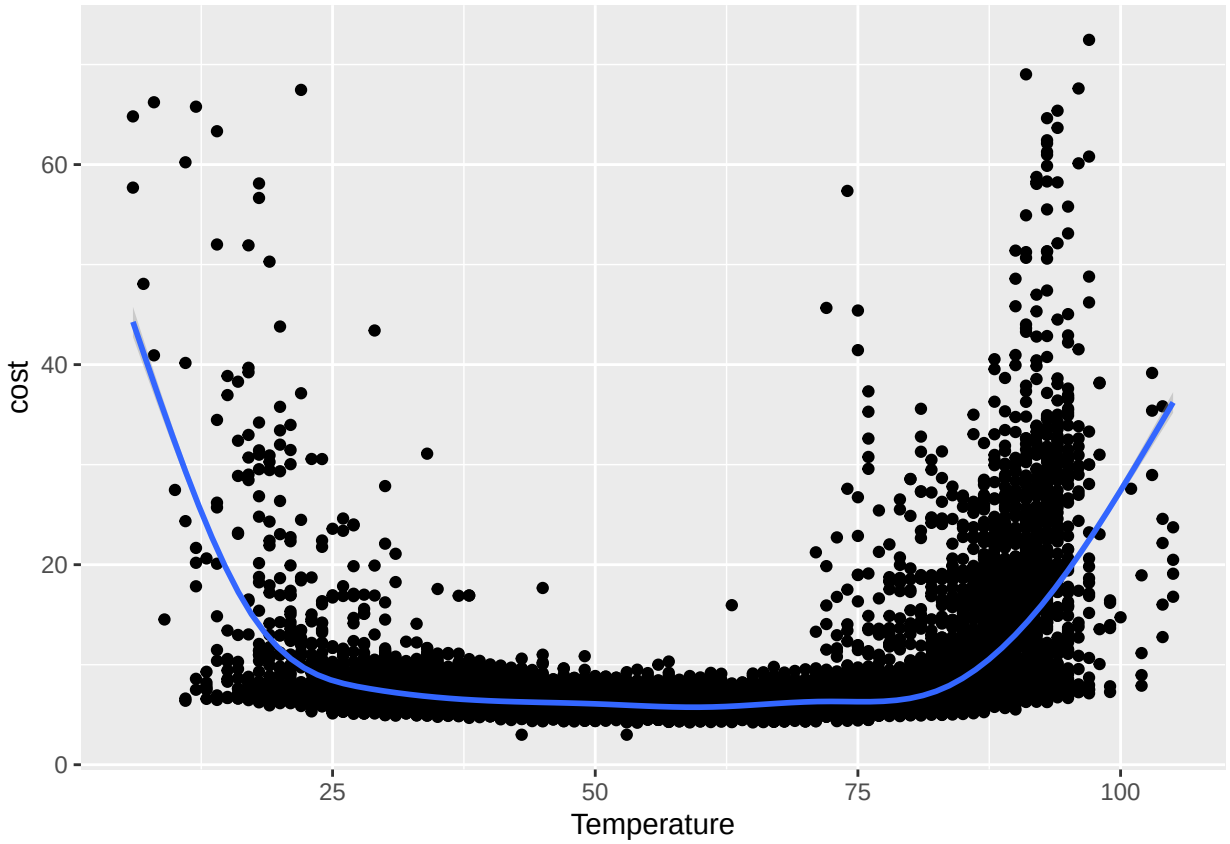
A Graph the relationship between temperature and electricity price with a smoother.

```
ggplot(weather_prices, aes(x=Temperature, y= cost)) +
        geom_point() +
        geom_smooth(formula=y~x)
```

```
## `geom_smooth()` using method = 'gam' and formula 'y ~ s(x, bs = "cs")'
```

```
## Warning: Removed 6 rows containing non-finite values (stat_smooth).
```

```
## Warning: Removed 6 rows containing missing values (geom_point).
```



Conclusion for part A: Energy Prices and Tempeture have a parabolic relationship seen by the fact that energy cost is highest when tempeture is at its exteremities.

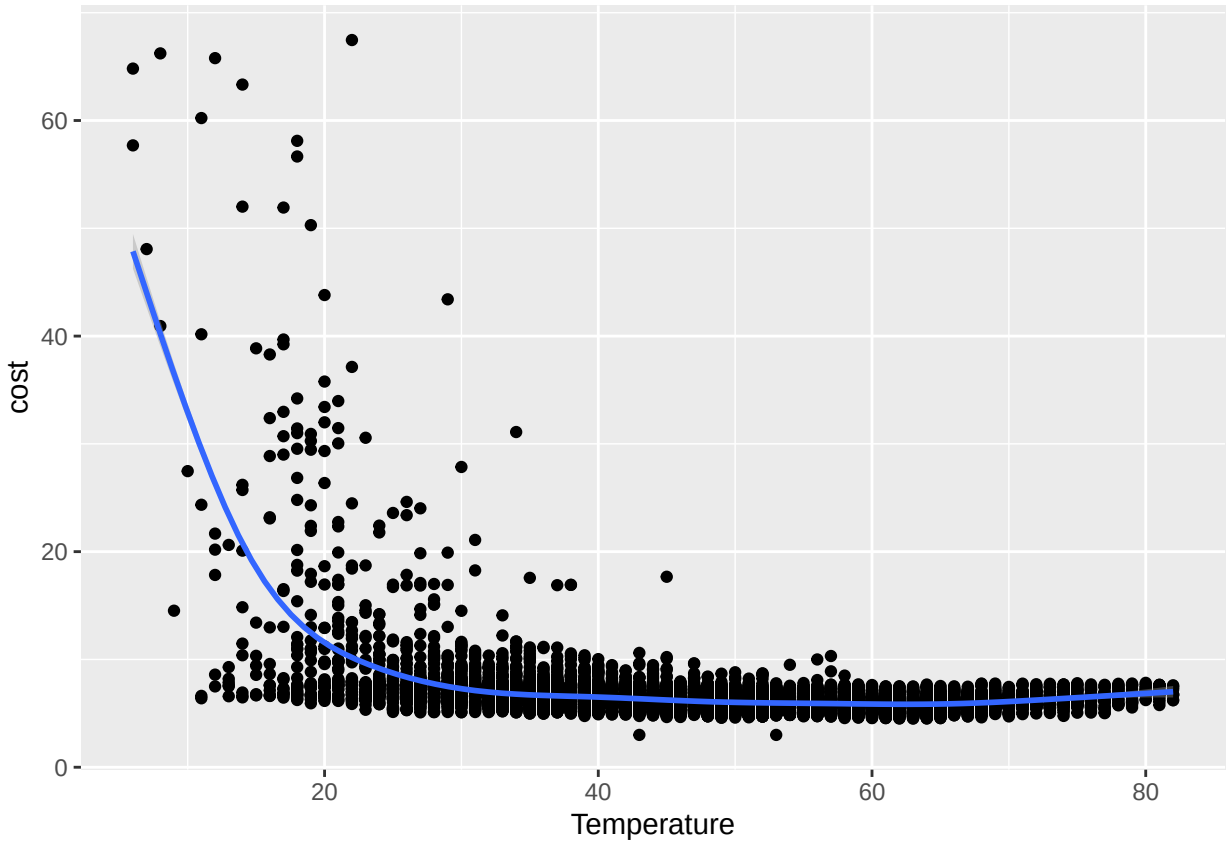
B) Graph the relationship between the temperature and electricity price for winter with a smoother.

```
winter <- weather_prices %>% filter((month(Timestamp) >= 1 & month(Timestamp) <= 3))
ggplot(winter, aes(x=Temperature, y= cost)) +
        geom_point() +
        geom_smooth()
```

```
## `geom_smooth()` using method = 'gam' and formula 'y ~ s(x, bs = "cs")'
```

```
## Warning: Removed 1 rows containing non-finite values (stat_smooth).

## Warning: Removed 1 rows containing missing values (geom_point).
```



Conclusion for part B: In the winter months, energy prices remain quite low until the temperature drops below 30 degrees.

C) Graph the relationship between the temperature and electricity price for summer with a smoother. How do you explain the anomaly in summer prices? Create a graph that supports your explanation.