Assignment 3

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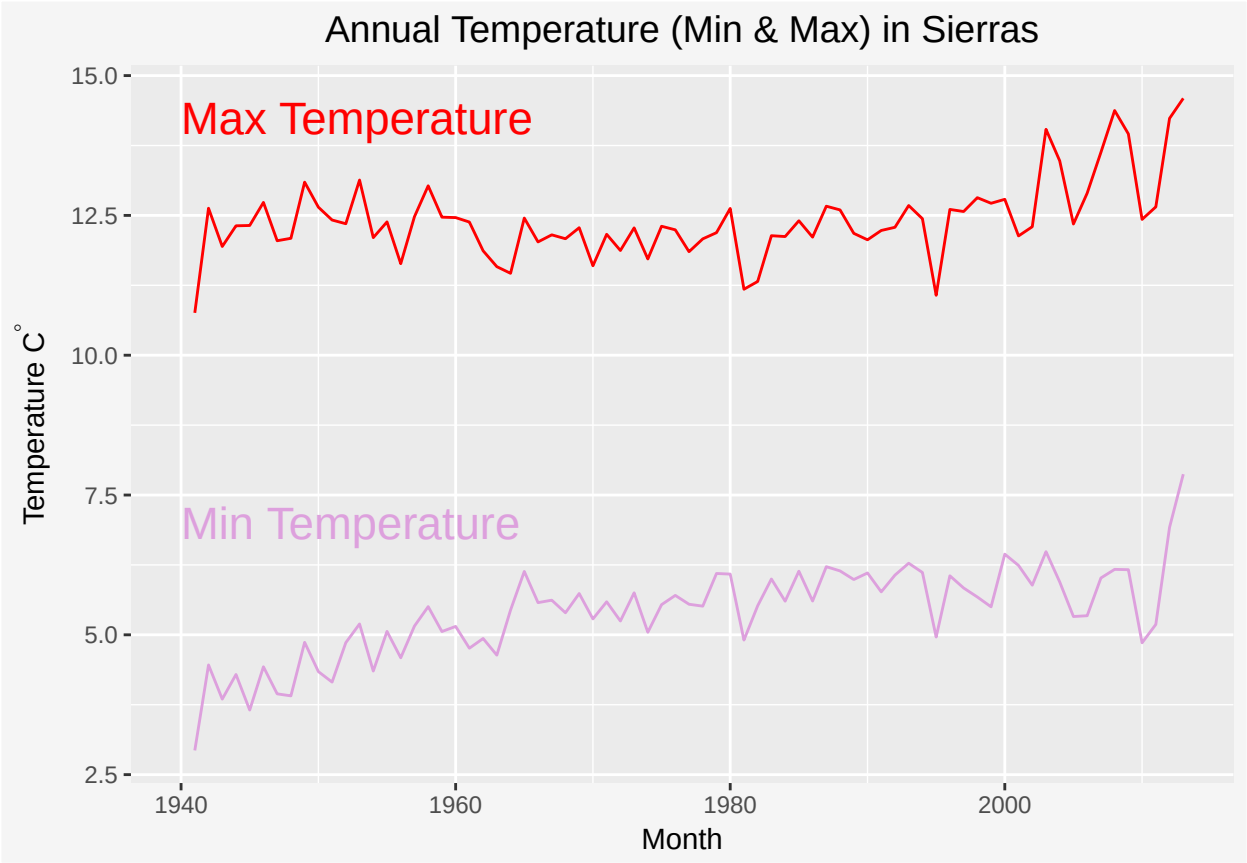
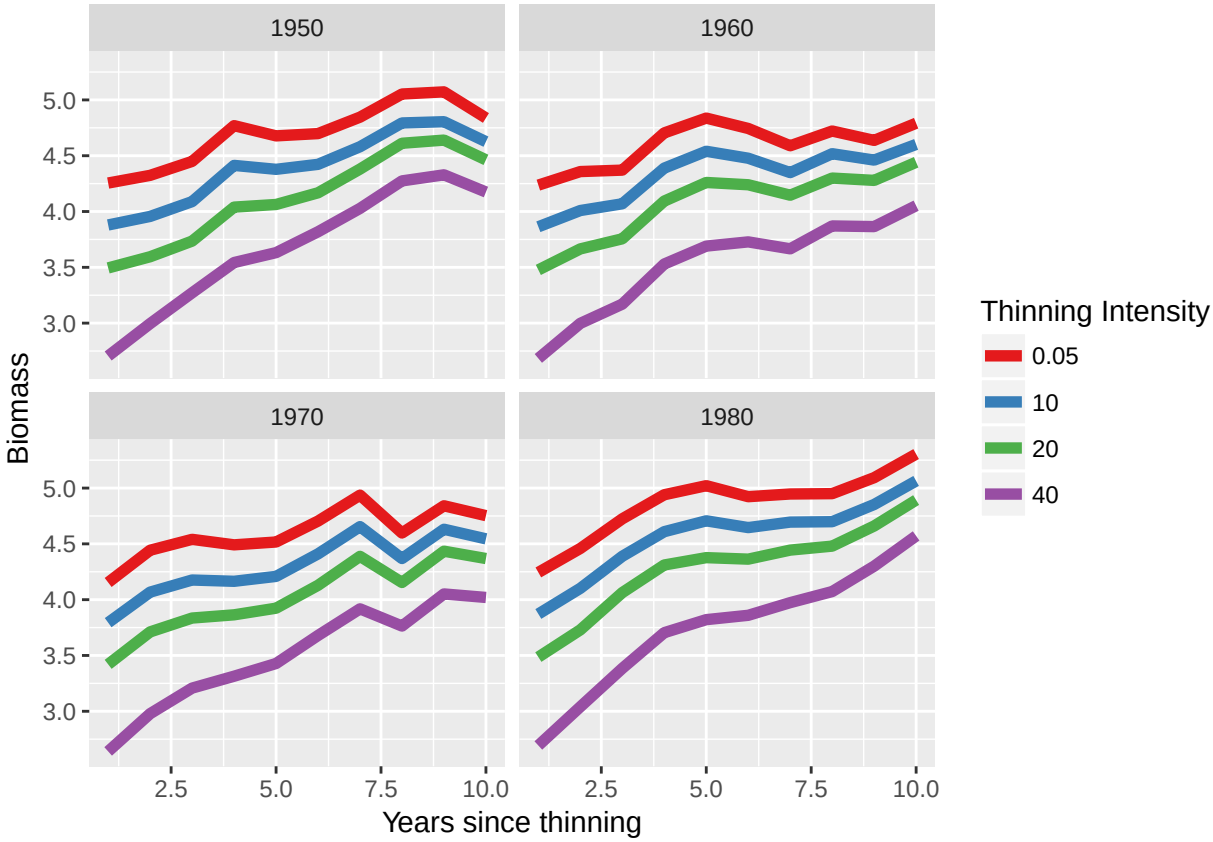
# A graph that shows both the max and min annual temperature in Sierras
BothTemGraph = ggplot(clim)+
  geom_line(aes(x = year, y = tmax), stat = "summary", fun.y = "mean", col= "red")+
  geom_line(aes(x = year, y = tmin), stat = "summary", fun.y = "mean", col = "plum")+
  ggtitle("Annual Temperature (Min & Max) in Sierras")+
  theme(plot.title=element_text(size=14, hjust=0.5), plot.background=element_rect(fill="whitesmoke"))+
  labs(y= expression(paste("Temperature ",C**degree)), x="Month")+
  annotate("text", x=1940, y=14.25, label="Max Temperature", colour="red", size=6, hjust=0)+
  annotate("text", x=1940, y=7, label="Min Temperature", colour="plum", size=6, hjust=0)
BothTemGraph
```




```
# A graph that shows the relationship between Biomass and Years since thinning for different start years
BiomassYears = ggplot(thindeep, aes(x=wy, y=plantc, col=as.factor(thin)))+
  stat_summary(fun.y="mean",geom="line", size=2)+
  facet_wrap(~as.factor(scen))+
  scale_color_brewer(type="qual", palette="Set1", name="Thinning Intensity")+
  labs(x="Years since thinning", y="Biomass")
BiomassYears
```

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# A graph that shows the max temperature and precipitation for all summers
SummerClimate = subset(clim, clim$month == "6" |clim$month == "7" |clim$month == "8")

scl = 120/23
SummerGraph = ggplot(SummerClimate) +
  geom_bar(aes(x=year,y=tmax*scl), stat="summary", fun.y="mean",  fill="pink") +
  geom_line(aes(x=year, y=rain), stat="summary", fun.y="sum", col="blue2")+
  scale_y_continuous(sec.axis = sec_axis(~./scl, name=expression(paste("Maximum Temperature ",C**degree
  labs(x="Year", y="Rainfall (mm/yr)")+
  annotate("text", x=1940, y=65, label="Precipitation", colour="blue4", size=5, hjust=0)+
  annotate("text", x=1940, y=105, label="Temperature", colour="pink", size=5, hjust=0)
SummerGraph
```
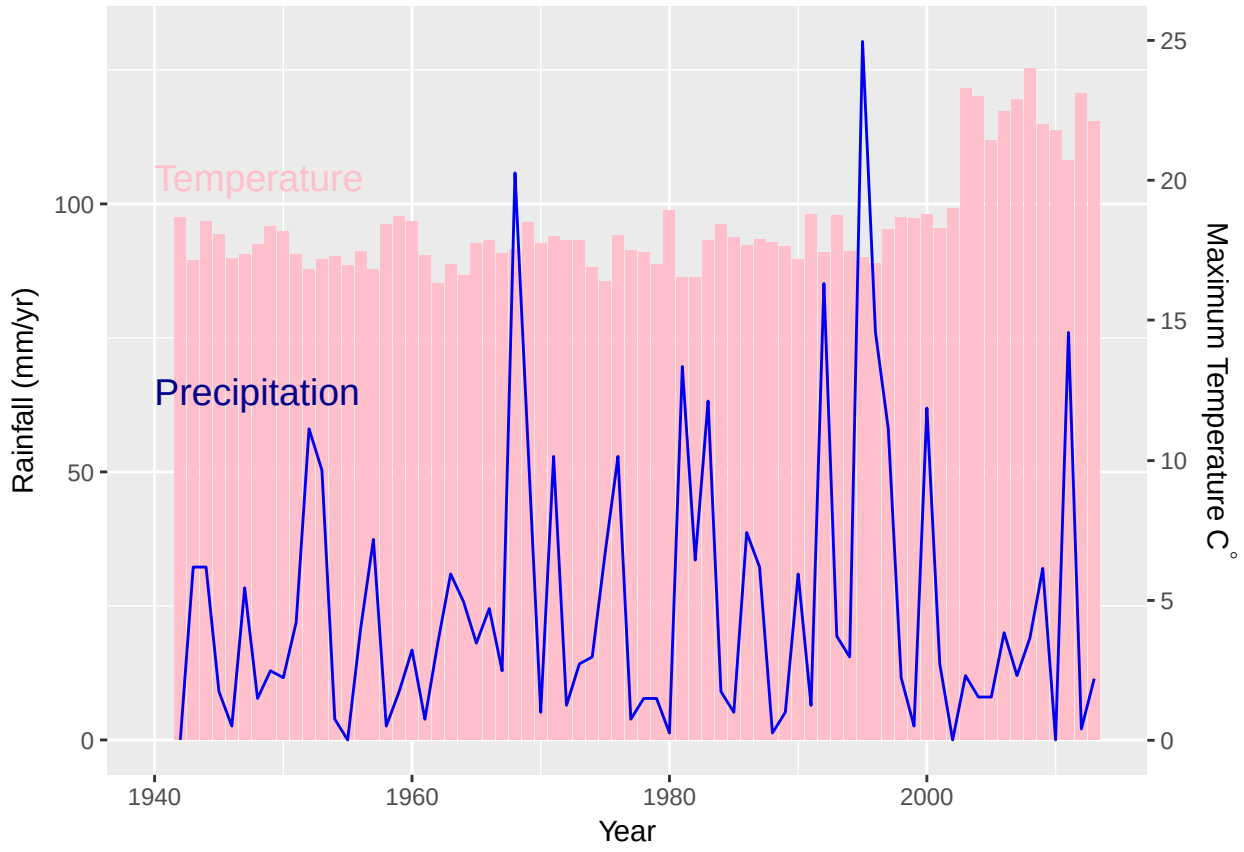
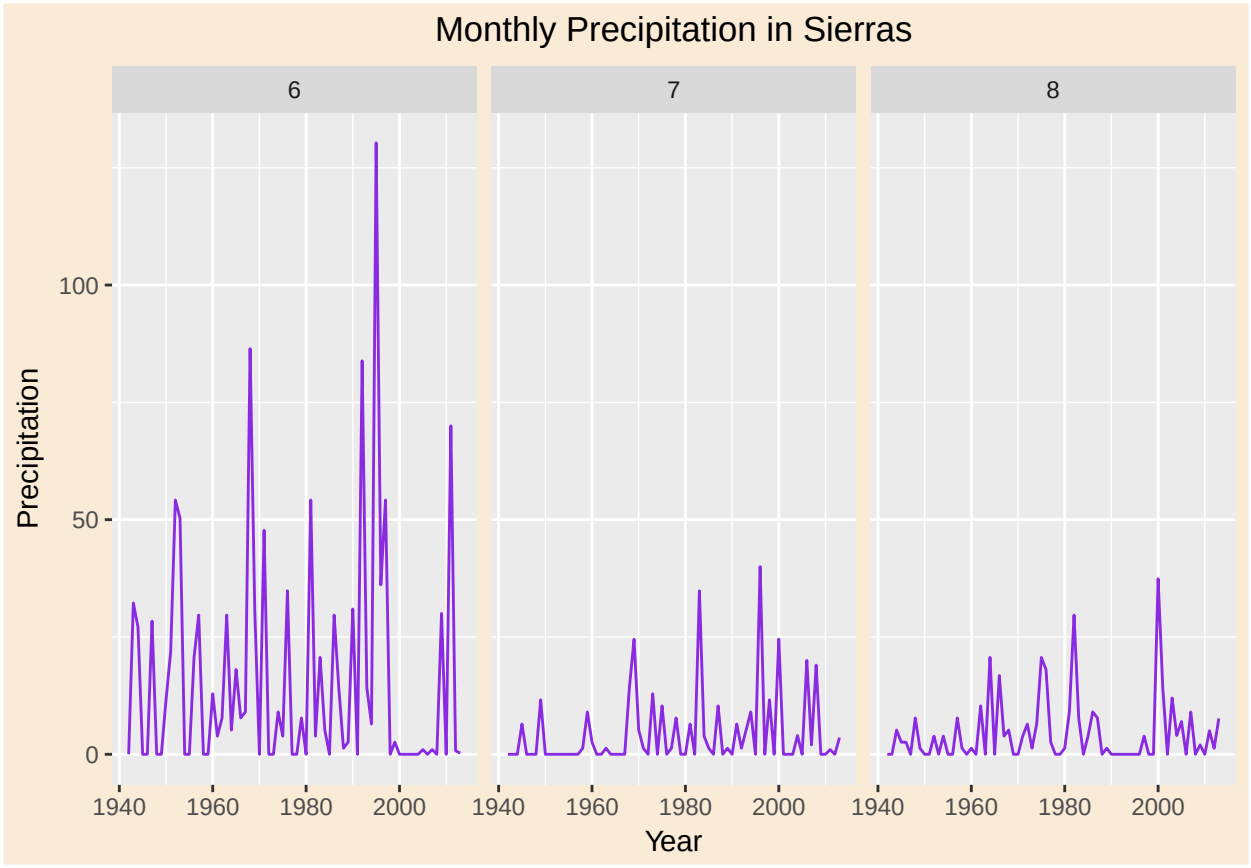




```
#A graph that shows the precipitation of different summer months
SummerPrep = ggplot(SummerClimate)+
  geom_line(aes(x=year,y=rain), stat="summary", fun.y="sum",  col="blueviolet")+
  facet_wrap(~as.factor(month))+
  labs(y= "Precipitation", x="Year")+
  ggtitle("Monthly Precipitation in Sierras")+
  theme(plot.title=element_text(size=13, hjust=0.5), plot.background=element_rect(fill="antiquewhite"))
SummerPrep
```


Monthly Precipitation in Sierras
6
7
8
Precipitation
100
50
0
1940
1960
1980
2000
Year