DataAssignment\_7

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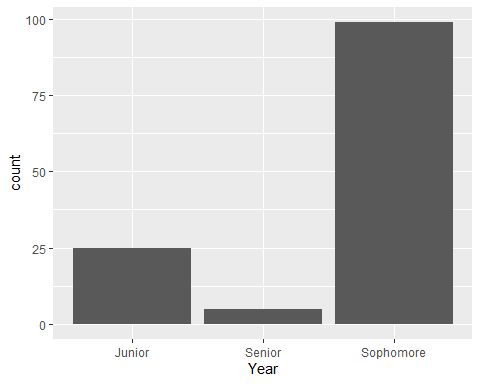
3/7/2021

# **Task-1: Load the Tophat dataset**

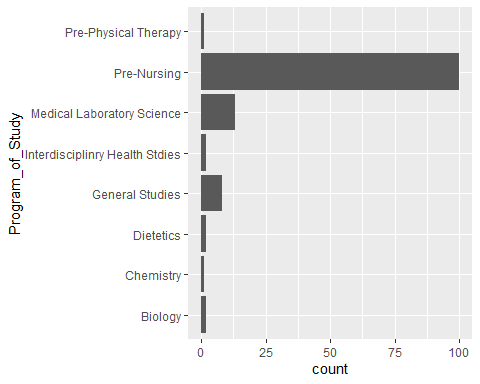
library(readxl)  
Data <- read\_excel("EFR 535 Assign 2 - Data Tophat - Jan 18 2018.xls",   
 na = "NA")  
View(Data)  
attach(Data)

# **Task-2: Create a vertical bar chart for Year. Create a horizontal bar chart for Program of Study**

# Create a vertical bar chart for Year.  
ggplot(Data, aes(x=Year))+geom\_bar()

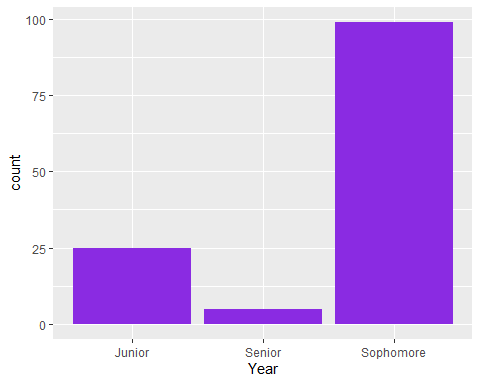


# Create a horizontal bar chart for Program of Study.  
ggplot(Data, aes(x=Program\_of\_Study))+geom\_bar()+coord\_flip()

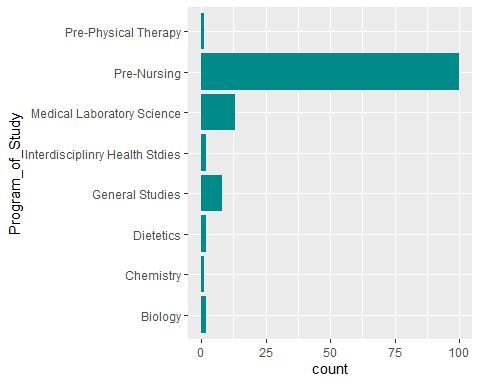


# **Task-3: Change color of all bars**

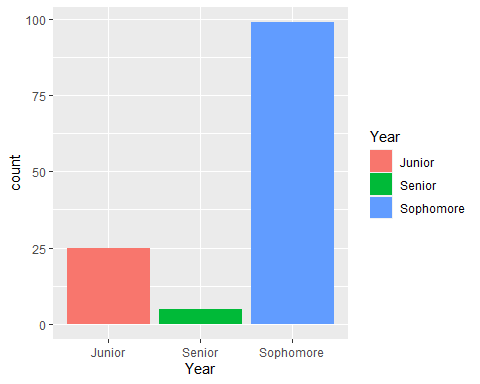
# All bars with same color  
ggplot(Data, aes(x=Year))+geom\_bar(fill = "blueviolet")



ggplot(Data, aes(x=Program\_of\_Study))+geom\_bar(fill = "darkcyan")+coord\_flip()

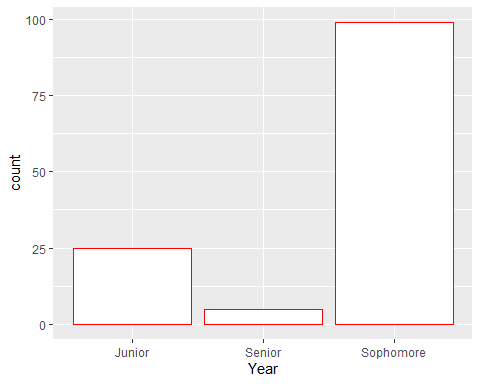


# each bar has different color   
ggplot(Data, aes(x=Year, fill=Year))+geom\_bar()

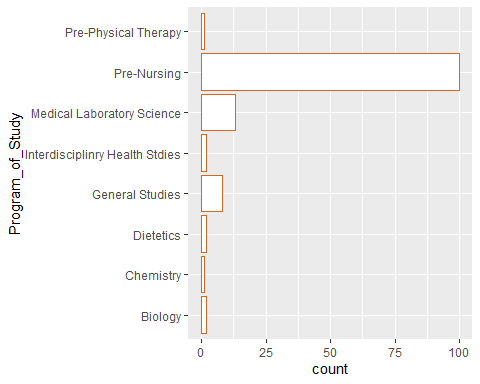


# **Task-4: Change the outline color of the bars so each is different according to the x-axis variable, leaving the fill white. You can use default colors, or the color brewer or grey scales**

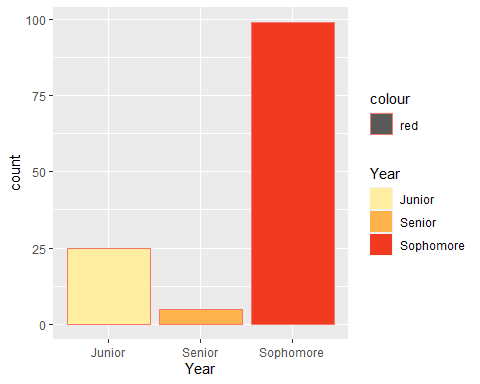
# fill white and outline color  
ggplot(Data, aes(x=Year))+geom\_bar(fill="white", color = "red")



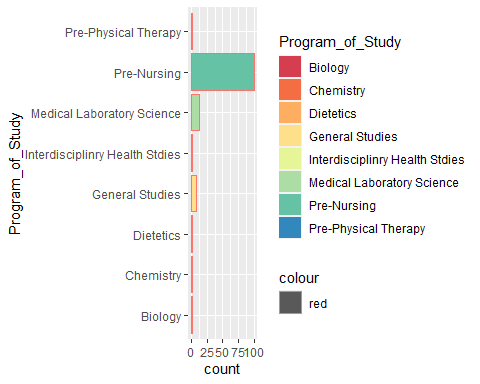
ggplot(Data, aes(x=Program\_of\_Study))+geom\_bar(fill="white", color = "chocolate")+coord\_flip()



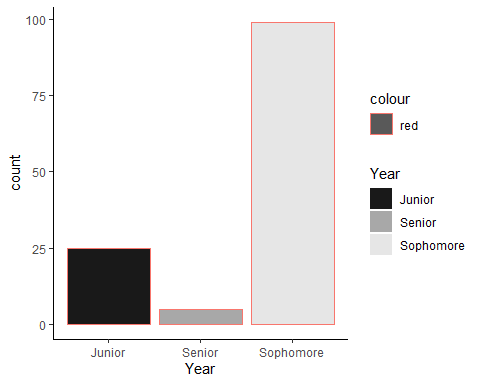
# Use of color brewer   
ggplot(Data, aes(x=Year,fill = Year,color = "red"))+geom\_bar()+ scale\_fill\_brewer(palette = "YlOrRd")



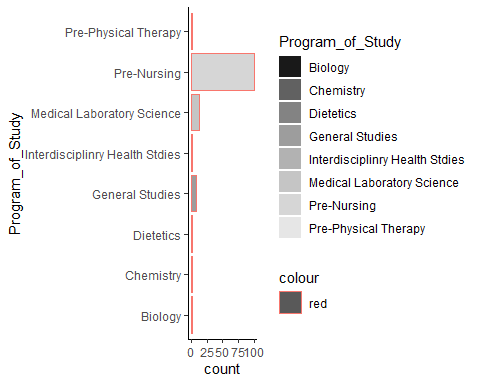
ggplot(Data, aes(x=Program\_of\_Study, fill = Program\_of\_Study, color="red"))+geom\_bar()+coord\_flip()+ scale\_fill\_brewer(palette = "Spectral")



# Use of grey scales  
ggplot(Data, aes(x=Year,fill = Year, color = "red"))+geom\_bar()+ scale\_fill\_grey(start=0.10, end = 0.90)+ theme\_classic()

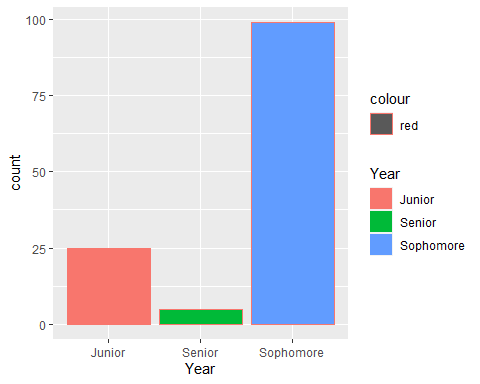


ggplot(Data, aes(x=Program\_of\_Study, fill = Program\_of\_Study, color = "red"))+geom\_bar()+coord\_flip()+ scale\_fill\_grey(start=0.10, end = 0.90)+theme\_classic()

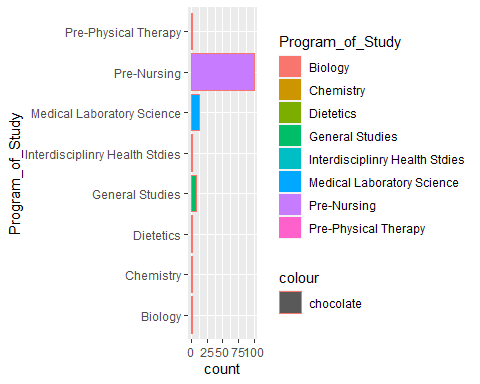


# **Task-5: Change the fill color of the bars so each is different according to x-axis variable**

ggplot(Data, aes(x=Year, fill=Year, color="red"))+geom\_bar()

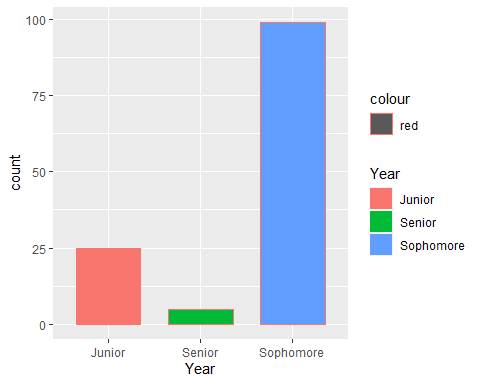


ggplot(Data, aes(x=Program\_of\_Study,fill=Program\_of\_Study, color = "chocolate"))+geom\_bar()+coord\_flip()

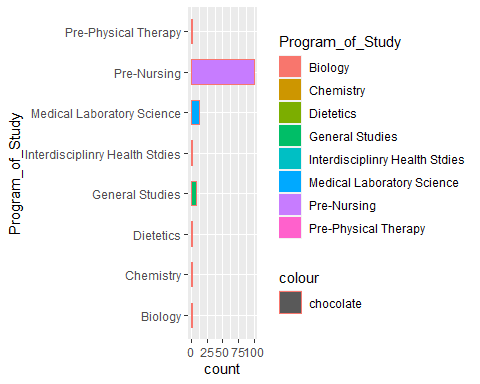


# **Task-6: Adjust bar width and theme**

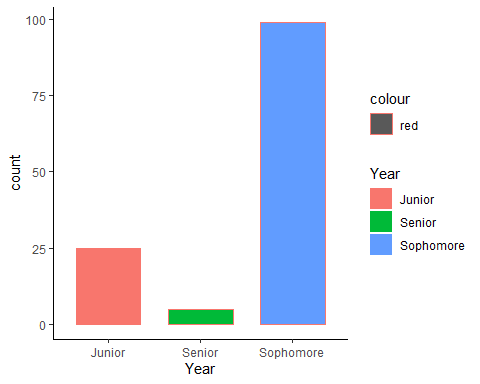
# adjust bar width  
ggplot(Data, aes(x=Year, fill=Year, color="red"))+geom\_bar(width = 0.7)



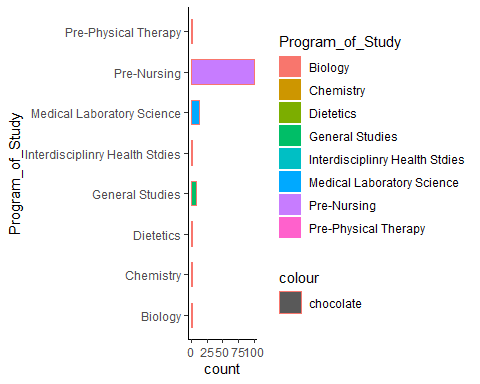
ggplot(Data, aes(x=Program\_of\_Study,fill=Program\_of\_Study, color = "chocolate"))+geom\_bar(width = 0.6)+coord\_flip()



# adjust theme  
ggplot(Data, aes(x=Year, fill=Year, color="red"))+geom\_bar(width = 0.7)+ theme\_classic()

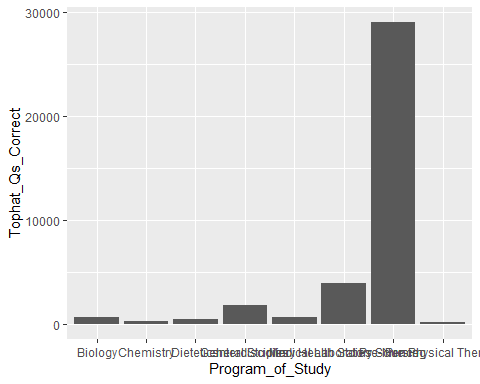


ggplot(Data, aes(x=Program\_of\_Study,fill=Program\_of\_Study, color = "chocolate"))+geom\_bar(width = 0.6)+coord\_flip()+ theme\_classic()

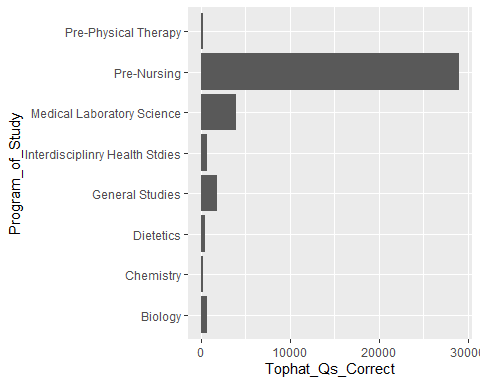


# **Task-7: Create a horizontal barplot in which categorical x-axis = Program of Study and continuous y-axis = Tophat\_Qs\_Correct. Then create vertical barplot in which categorical x-axis = Year and continuous y-axis = Tophat\_total\_Qs\_answered.**

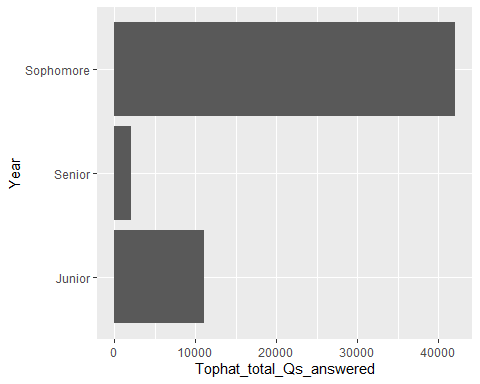
# Unsummarized data (seems wrong information in y-axis!!)  
# Create a horizontal barplot in which categorical x-axis = Program of Study and continuous y-axis = Tophat\_Qs\_Correct.  
ggplot(Data, aes(x=Program\_of\_Study, y=Tophat\_Qs\_Correct)) + geom\_bar(stat="identity")



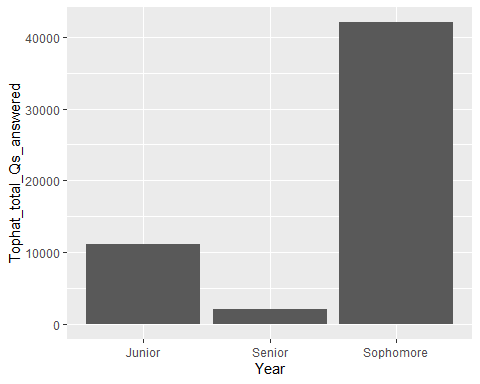
# I prefer to draw vertical barplot for this setup  
ggplot(Data, aes(x=Program\_of\_Study, y=Tophat\_Qs\_Correct)) + geom\_bar(stat="identity") + coord\_flip()



# Then create vertical barplot in which categorical x-axis = Year and continuous y-axis = Tophat\_total\_Qs\_answered.  
ggplot(Data, aes(x=Year, y=Tophat\_total\_Qs\_answered)) + geom\_bar(stat="identity") + coord\_flip()

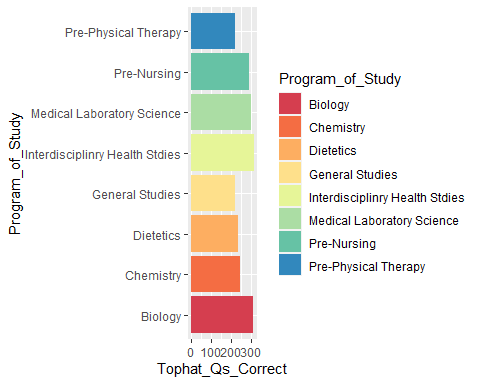


# I prefer to draw horizontal barplot for this setup  
ggplot(Data, aes(x=Year, y=Tophat\_total\_Qs\_answered)) + geom\_bar(stat="identity")

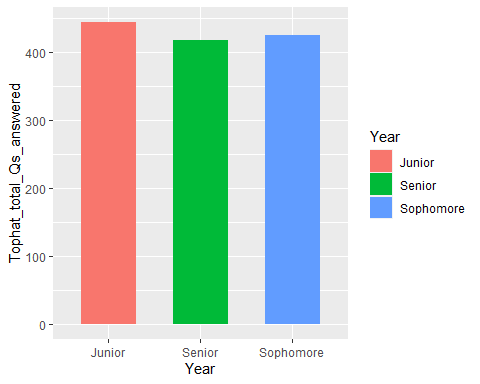


# **Task-8: Create a new object that contains presummarized data for the variables in the bar charts. Change the color of the bars.**

# categorical x-axis = Program of Study and continuous y-axis = Tophat\_Qs\_Correct  
means\_CorrectPOS <- aggregate(Tophat\_Qs\_Correct ~ Program\_of\_Study, Data, FUN = mean)  
view(means\_CorrectPOS)  
# Draw bar plot and change the colors of bars  
ggplot(data=means\_CorrectPOS, aes(x=Program\_of\_Study, y=Tophat\_Qs\_Correct, fill=Program\_of\_Study)) + geom\_bar(stat="identity") + coord\_flip()+scale\_fill\_brewer(palette = "Spectral")

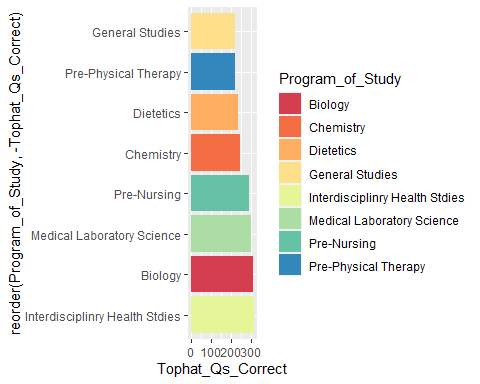


# categorical x-axis = Year and continuous y-axis = Tophat\_total\_Qs\_answered.  
means\_AnsweredYear <- aggregate(Tophat\_total\_Qs\_answered ~ Year, Data, FUN = mean)  
view(means\_AnsweredYear)  
# Draw bar plot and change the colors of bars  
ggplot(data=means\_AnsweredYear, aes(x=Year, y=Tophat\_total\_Qs\_answered, fill=Year)) + geom\_bar(stat="identity", width = 0.6)

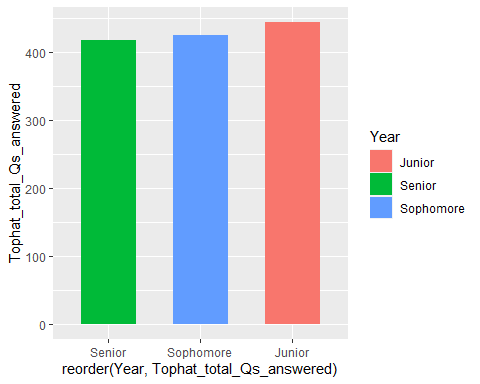


# **Task-9: Reorder the bars based on height**

# categorical x-axis = Program of Study and continuous y-axis = Tophat\_Qs\_Correct  
ggplot(data=means\_CorrectPOS, aes(x=reorder(Program\_of\_Study,-Tophat\_Qs\_Correct), y=Tophat\_Qs\_Correct, fill=Program\_of\_Study)) + geom\_bar(stat="identity") + coord\_flip()+scale\_fill\_brewer(palette = "Spectral")

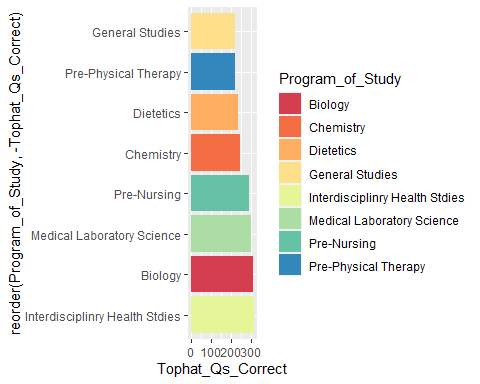


# categorical x-axis = Year and continuous y-axis = Tophat\_total\_Qs\_answered.  
ggplot(data=means\_AnsweredYear, aes(x=reorder(Year,Tophat\_total\_Qs\_answered), y=Tophat\_total\_Qs\_answered, fill=Year)) + geom\_bar(stat="identity", width = 0.6)

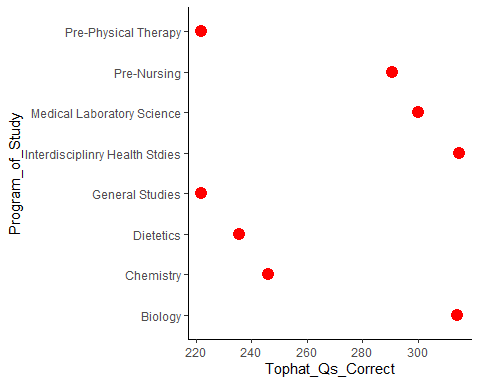


# **Task-10: Choose one of the plots above and create one variant of the bar chart: grouped barplot, dotplot, or lolliplot**

# Chosen barchart  
ggplot(data=means\_CorrectPOS, aes(x=reorder(Program\_of\_Study,-Tophat\_Qs\_Correct), y=Tophat\_Qs\_Correct, fill=Program\_of\_Study)) + geom\_bar(stat="identity") + coord\_flip()+scale\_fill\_brewer(palette = "Spectral")



# dotplot  
ggplot(data=means\_CorrectPOS, aes(x=Program\_of\_Study, y=Tophat\_Qs\_Correct)) + geom\_point(size=4, color="red")+ theme\_classic()+coord\_flip()



# lolliplot  
ggplot(data=means\_CorrectPOS, aes(x=Program\_of\_Study, y=Tophat\_Qs\_Correct)) + geom\_point(size=5, color="chocolate")+ geom\_segment(aes(x = Program\_of\_Study, xend=Program\_of\_Study,y =0,yend=Tophat\_Qs\_Correct)) + theme\_classic()+coord\_flip()

