Graphics activity

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Contents

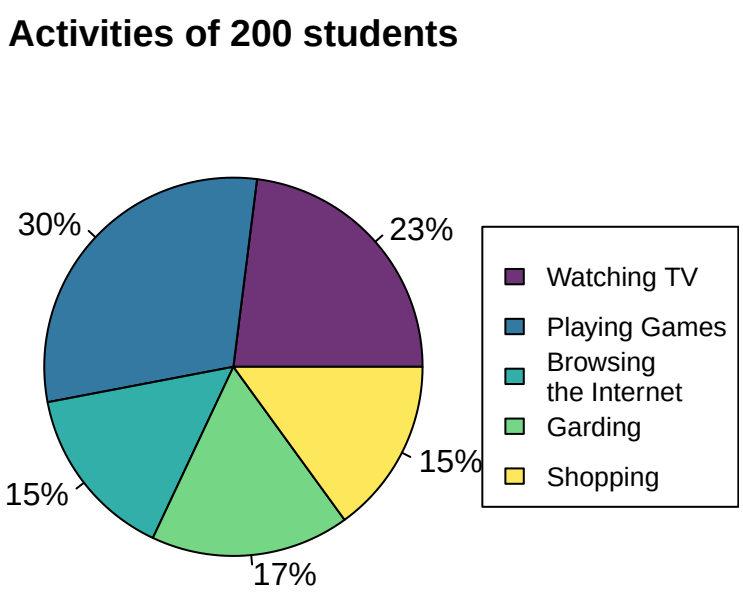
Problems

Student activities

The table shows the favorite activities of 200 students. What type of graph would be most appropriate to show the data as parts of a whole?

Favorite Activity	Percent of Students
Watching TV	23%
Playing Games	30%
Browsing the Internet	15%
Gardening	17%
Shopping	15%

```
activity = c("Watching TV" = 23, "Playing Games" = 30,
             "Browsing\nthe Internet" = 15, "Garding" = 17,
             "Shopping" = 15)
labels = paste0(activity,"%")
pie(activity, labels, col = hcl.colors(5, alpha = 0.8),
    main = "Activities of 200 students")
legend("right", legend = names(activity), cex = 0.8,
       fill = hcl.colors(5, alpha = 0.8))
```

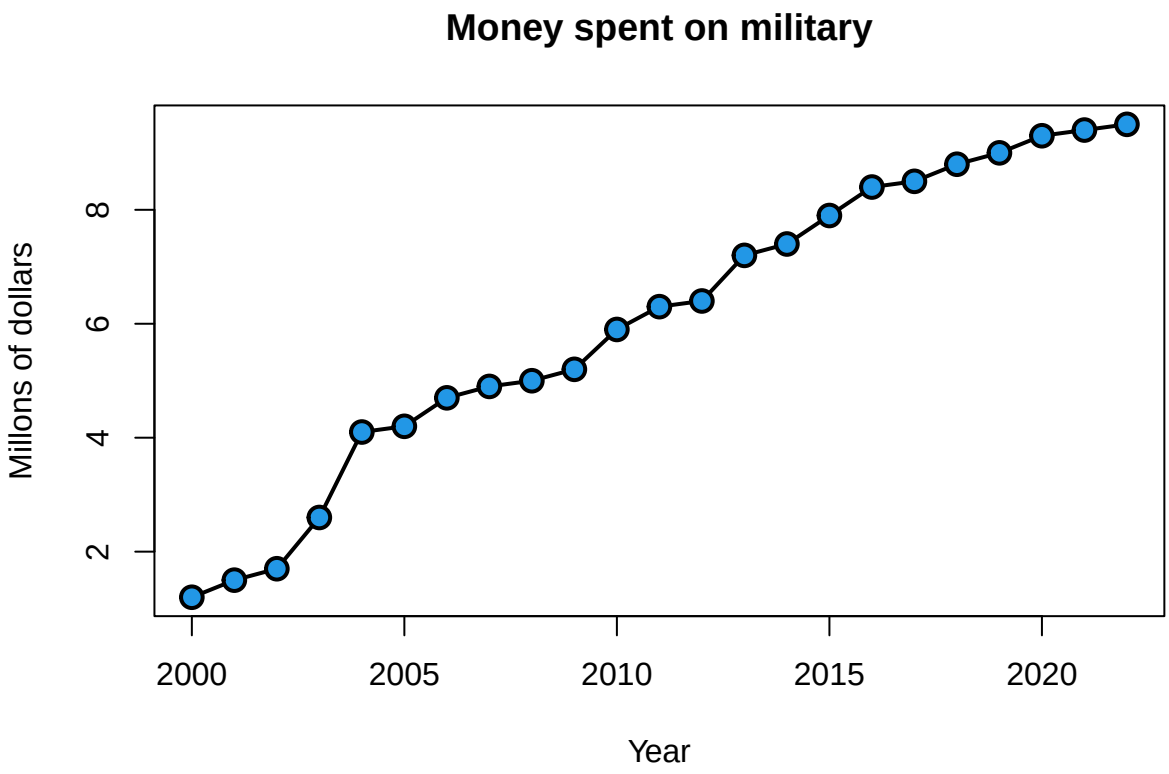


Money spent on military

Identify the graph that is most appropriate to represent a data that denotes the amount of money spent on military over a period of time.

A line plot.

```
set.seed(2)
money = sort(sample(seq(1,10,0.1),23))
year = 2000:2022
plot(year, money, type = "l", lwd = 2, xlab = "Year",
     ylab = "Millons of dollars",
     main = "Money spent on military")
points(year, money, pch = 21, col = 1, bg = 4, cex = 1.5, lwd = 2)
```



Time spent to get work

Which graph would be most appropriate to show the time in number of minutes that 25 employees take to travel to the office?

A stem because of the small number of sample.

```
set.seed(2)
time = round(rnorm(25,25,5))
stem(time, scale = 1)
```

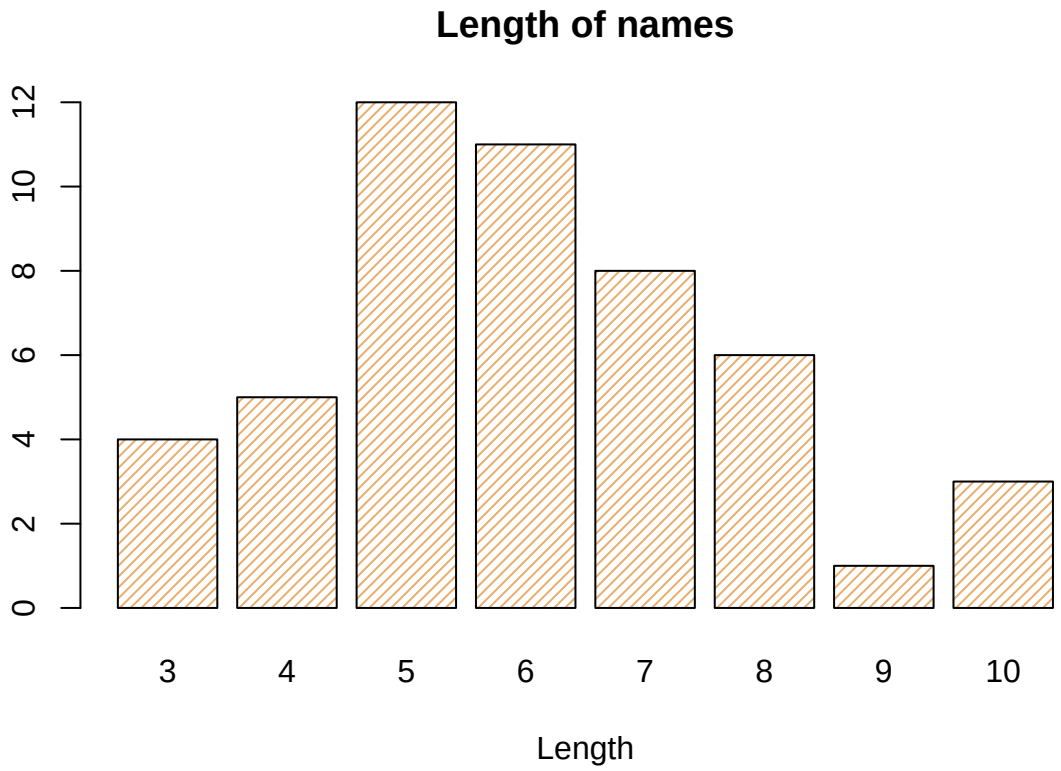
```
##
##   The decimal point is 1 digit(s) to the right of the |
##
##   1 | 3
##   1 | 99
##   2 | 01344
##   2 | 555667799
##   3 | 00334
##   3 | 555
```

Length of names

A survey was conducted on the length of the names of the students in a class. What type of graph would be most appropriate to show the range of the data?

It depends of the number of students and the range of the data.

```
set.seed(47)
lengths = sample(3:15, 50, TRUE, dnorm(3:15, 6, 2))
barplot(table(lengths), density = 25, col = "#E9AE6D",
     xlab = "Length", main = "Length of names")
```

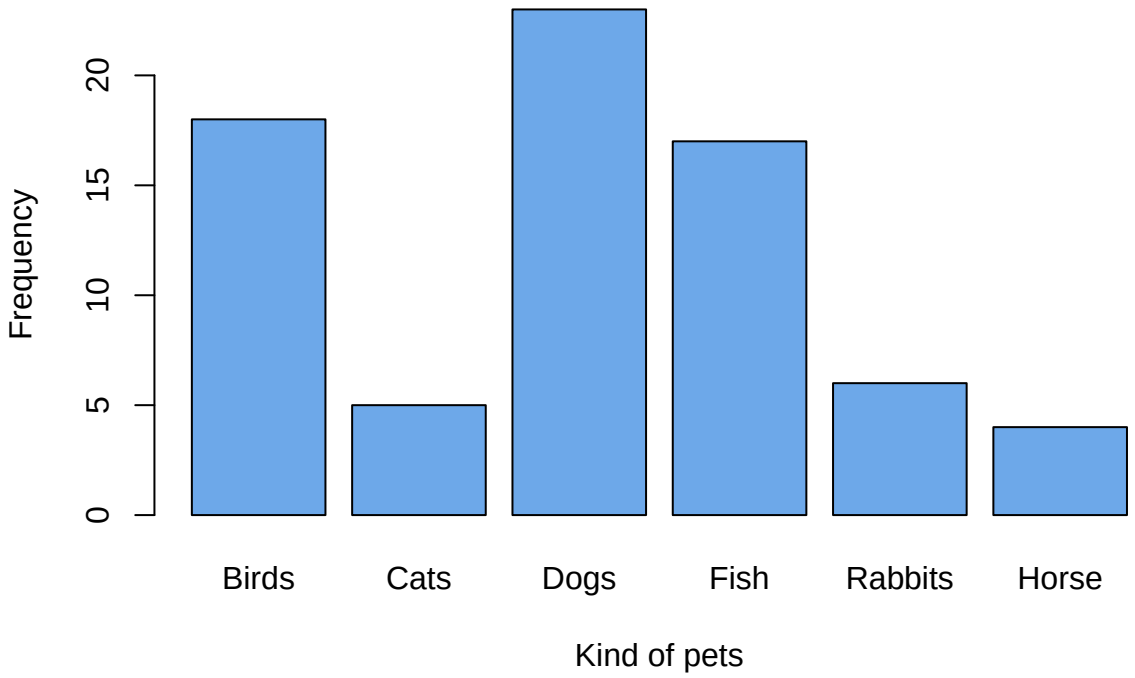


Most common pets

The table shows the kinds of pets the students have in a class. What type of graph would be most appropriate for the data?

Pet	Frequency of the Pet
Birds	18
Cats	5
Dogs	23
Fish	17
Rabbits	6
Horse	4

```
pet = c("Birds","Cats","Dogs","Fish","Rabbits","Horse")
count = c(18,5,23,17,6,4)
barplot(count, names.arg = pet, xlab = "Kind of pets",
        ylab = "Frequency", col = "#6DA8E9")
```

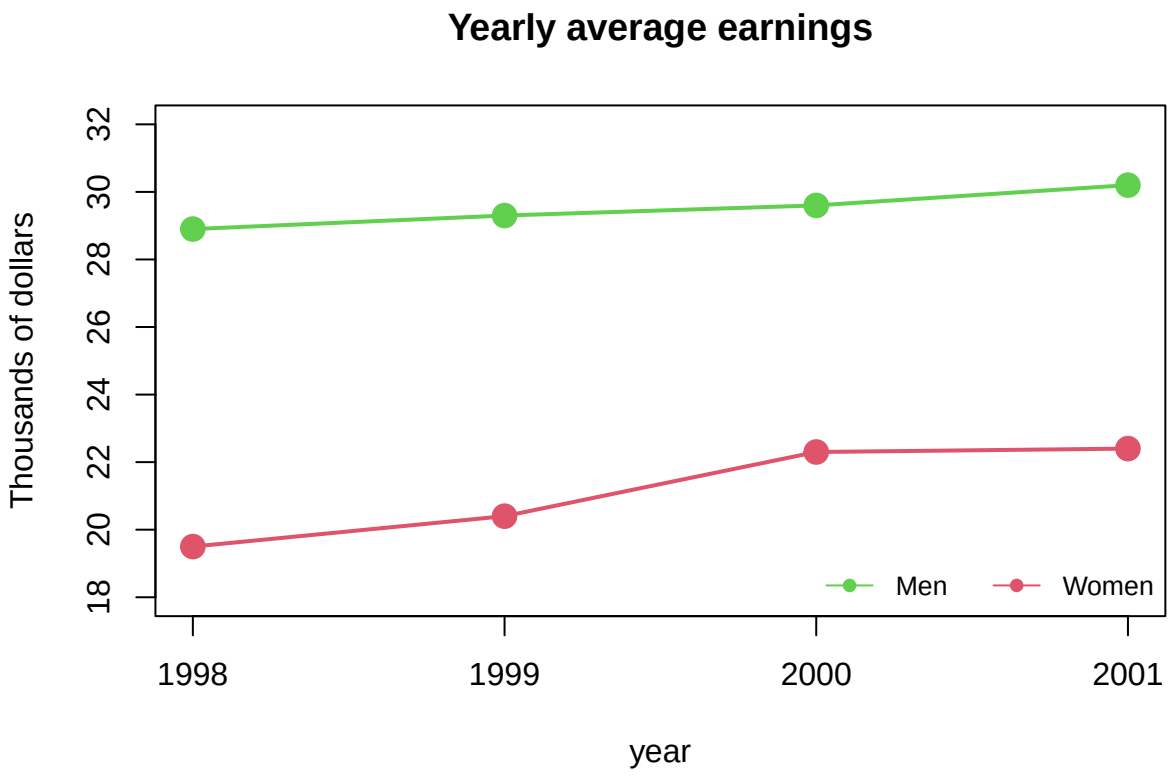


Yearly average earnings

The table shows the yearly average earnings (in thousands of dollars) for men and women. Which type of graph would be most appropriate for the data?

Year	1998	1999	2000	2001
Men	28.9	29.3	29.6	30.2
Women	19.5	20.4	22.3	22.4

```
year = 1998:2001
men = c(28.9,29.3,29.6,30.2)
women = c(19.5,20.4,22.3,22.4)
plot(year, men, type = "o", ylim = c(18,32),
     main = "Yearly average earnings", ylab = "Thousands of dollars",
     xaxt = "n", col = 3, pch = 19, cex = 1.5, lwd = 2)
lines(year, women, type = "o", col = 2, pch = 19, cex = 1.5, lwd = 2)
axis(1, year)
legend("bottomright", horiz = T, legend = c("Men","Women"),
       pch = 19, col = 3:2, lty = 1, cex = 0.8, bty = "n")
```



Weights

The weight of 15 people(in kg) are listed: 34, 49, 23, 54, 35, 64, 40, 53, 52, 76, 48, 21, 47, 34, and 33. Which type of graph is appropriate for the data?

```
weights = c(34,49,23,54,35,64,40,53,52,76,48,21,47,34,33)
stem(weights, scale = 2)
```

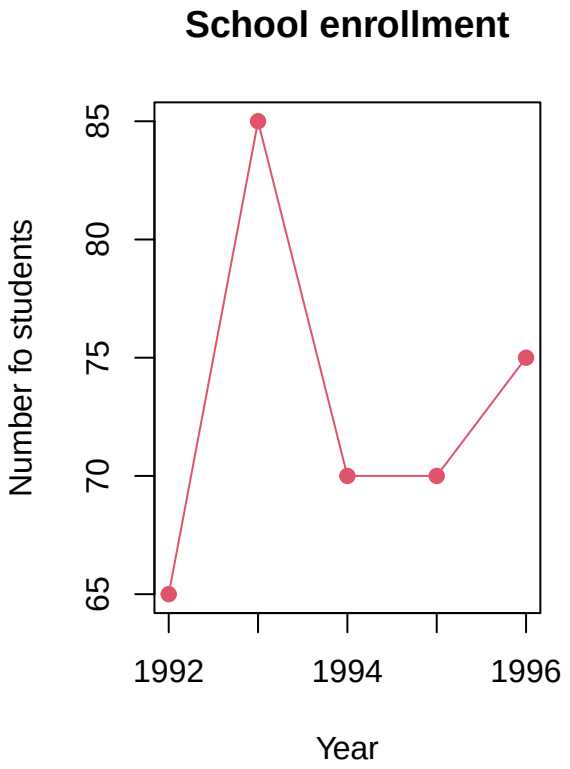
```
##
##   The decimal point is 1 digit(s) to the right of the |
##
##   2 | 13
##   3 | 3445
##   4 | 0789
##   5 | 234
##   6 | 4
##   7 | 6
```

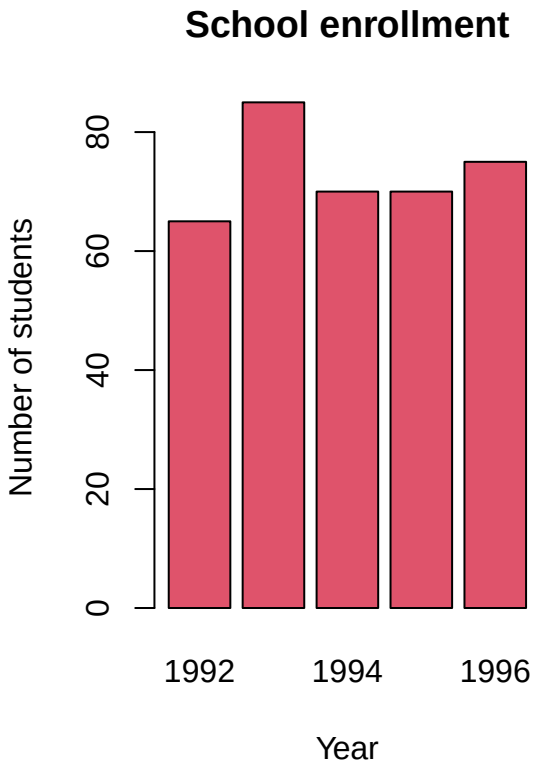
School enrollment

The table shows the school enrollment between 1992 to 1996. Which type of graph is appropriate for the data?

Year	Number of students
1992	65
1993	85
1994	70
1995	70
1996	75

```
par(mfrow = c(1,2))
year = 1992:1996
students = c(65,85,70,70,75)
plot(year, students, type = "o", ylab = "Number fo students",
     xlab = "Year", main = "School enrollment", pch = 19, col = 2)
barplot(students, names.arg = year, ylab = "Number of students",
        xlab = "Year", main = "School enrollment", col = 2)
```



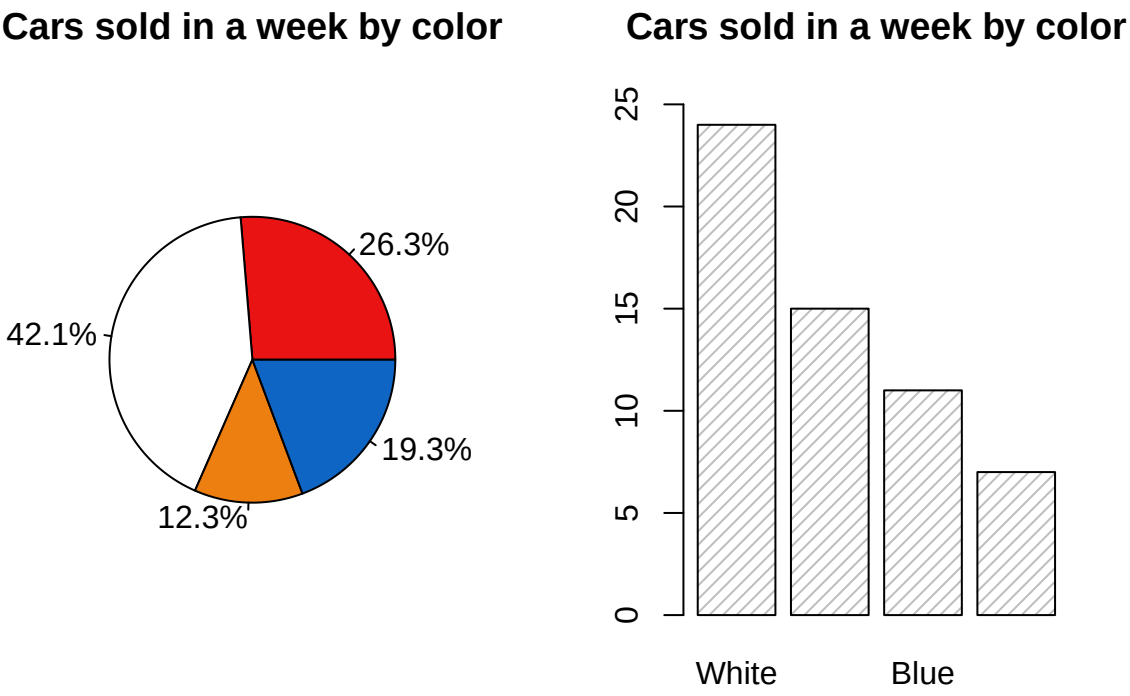


Cars sold by color

The table shows the number of cars sold in a week. Which type of graph is appropriate for the data?

Color of car	Red	White	Orange	Blue
Number of cars	15	24	7	11

```
par(mfrow = c(1,2))
cars = c(15,24,7,11)
names(cars) = c("Red","White","Orange","Blue")
colors = c("#E91313","#FFFFFF","#ED7F11","#0E65C4")
pie(cars, labels = paste0(round(cars/sum(cars)*100,1),"%"),
    col = colors, main = "Cars sold in a week by color")
barplot(sort(cars, decreasing = TRUE), density = 20,
        main = "Cars sold in a week by color", ylim = c(0,25))
```

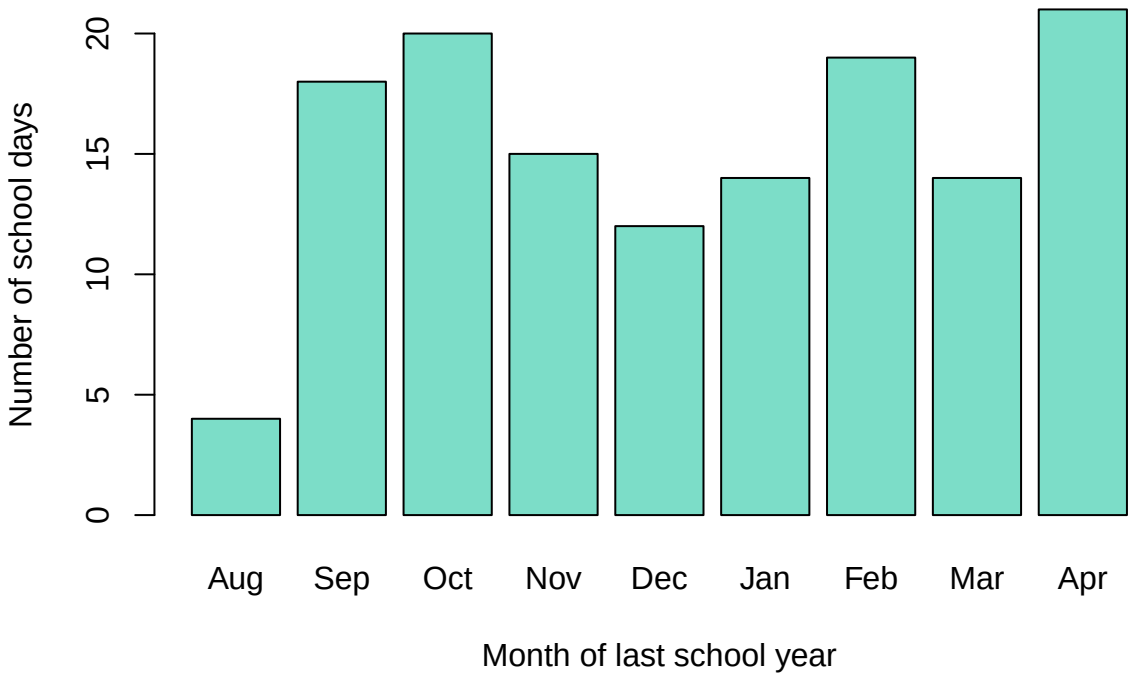


School days during school year

The table shows the number of school days each month during the last school year.

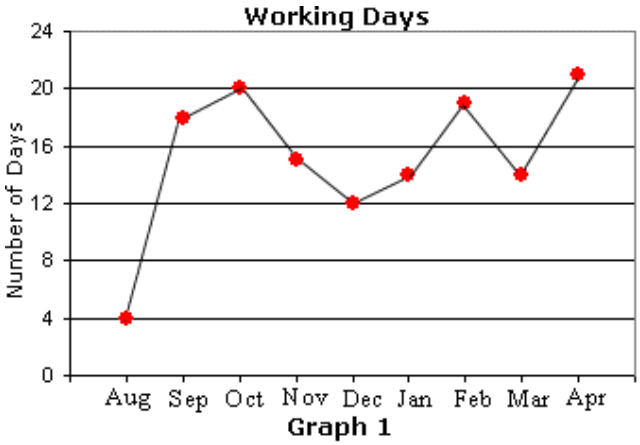
Month	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Number of Days	4	18	20	15	12	14	19	14	21

```
months = month.abb[c(8:12,1:4)]
days = c(4,18,20,15,12,14,19,14,21)
barplot(days, names.arg = months,
        xlab = "Month of last school year",
        ylab = "Number of school days", col = "#7CDDC8")
```

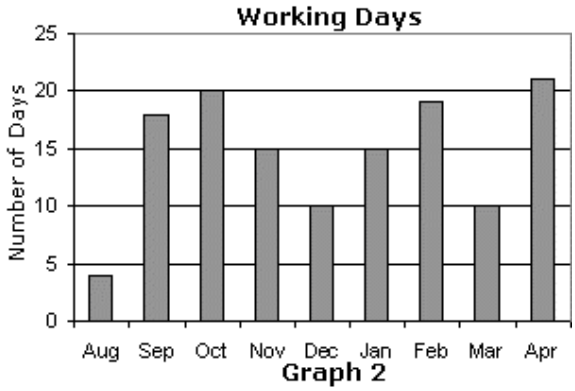


Which best describe?

Which of the graphs best represents the data?



Graph 1



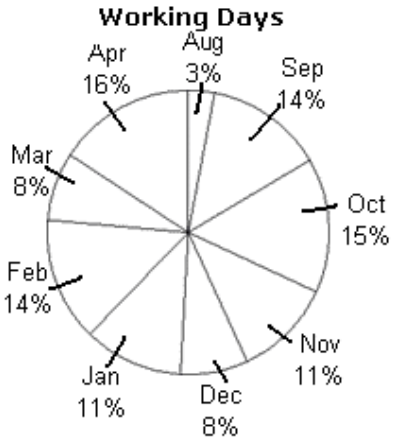
Graph 2

Working Days

Month	Number of School Days
August	●
September	● ● ● ●
October	● ● ● ● ●
November	● ● ● ●
December	● ● ●
January	● ● ● ●
February	● ● ● ● ●
March	● ● ●
April	● ● ● ● ●

● = 4 days

Graph 3



Graph 4

Graph 2 better describes the data.

Source

http://worksheets.tutorvista.com/choosing-the-appropriate-graph-worksheet.html