Ideology of US Supreme Court Justices

We introduced an important programming method called the *loop*. In this exercise, we practice using loops with data on the ideological positions of United States Supreme Court Justices. Just like legislators, justices make voting decisions that we can use to estimate their ideological positions. This exercise is based in part on Andrew Martin and Kevin Quinn. (2002). 'Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953-1999.' *Political Analysis*, 10:2, pp.134-154.

The file `justices.csv` contains the following variables:

Name	Description
`term`	Supreme Court term (a year)
`justice`	Justice's name
`idealpt`	Justice's estimated ideal point in that term
`pparty`	Political party of the president in that term
`pres`	President's name

The ideal points of the justices are negative to indicate liberal preferences and positive to indicate conservative preferences.

Question 1

We wish to know the median ideal point for the Court during each term included in the dataset. First, calculate the median ideal point for each term of the Court. Next, generate a plot with term on the horizontal axis and ideal point on the vertical axis. Include a dashed horizontal line at zero to indicate a "neutral" ideal point. Be sure to include informative axis labels and a plot title.

Question 2

Next, we wish to identify the name of the justice with the median ideal point **for each term**. Which justice had the median ideal point in the most (potentially nonconsecutive) terms? How long did this justice serve on the Court overall? What was this justice's average ideal point over his/her entire tenure on the Court?

Question 3

We now turn to the relationship between Supreme Court ideology and the president. Specifically, we want to see how the ideology of the Supreme Court changes over the course of each president's time in office. Begin by creating two empty 'container' vectors: one to hold Democratic presidents, and another for Republican presidents. Label each vector with the presidents' names.

Question 4

Next, for each Democratic president, calculate the shift in Supreme Court ideology by subtracting the Court's median ideal point in the president's first term from its median ideal point in the president's last term. Use a loop to store these values in your Democratic container vector. Repeat the same process for Republican presidents.

Question 5

What was the mean and standard deviation of the Supreme Court ideology shifts you just calculated when looking only at the Democratic presidencies? What about the Republican presidencies? Which Republican president's tenure had the largest conservative (positive) shift on the Court? Which Democratic president's tenure had the largest liberal (negative) shift?

Question 6

Create a plot that shows the median Supreme Court ideal point over time. Then, add lines for the ideal points of each unique justice to the same plot. The color of each line should be red if the justice was appointed by a Republican and blue if he or she was appointed by a Democrat. (You can assume that when a Justice first appears in the data, they were appointed by the president sitting during that term.) Label each line with the justice's last name. Briefly comment on the resulting plot.