Programming assignment 5.

Due date: Tuesday, April 9 2019 at 11:00pm

Implement a function to find the ***K*** elements of a given array that are closet to the median. (***Hint***: You could modify Quick_Select to find the answer!)

1. Request the user to enter a positive integer, and call it ***n***.
2. Generate ***n*** random integers between *-100* to *100* and save them in ***a***.
3. Print the generated array.
4. Request the user to enter a number between 1 to n, and call it ***K***.
5. Find the median of the array. (***Hint:*** can you use quick select? What is the time complexity in this step?)
6. Save the differences from the median (|a[i]-median|) in a new array and call it ***diff***. (***Note***: The ***K*** closet elements/numbers have the K smallest difference from the median. What is the time complexity in this stage?)
7. Use ***diff*** to find the K numbers. (***Hint:*** can you use quick select again? What is the time complexity in this step?)
8. Shift the found K numbers back to their original value (+median). (***Question***: What is the time complexity in this step?)
9. Print the answer ☺
10. Calculate the total time complexity of your algorithm and present your answer when demoing.