Problem 0.1. Read pp. 96-120 of Bird We will discuss list induction in class but you should have some familiarity with it from the readings. Read Chapters 1 and 3 of LYAHFGG

Problem 0.2. Write functions having the following types:

$$
\begin{array}{lll}
first & :: & [a] \rightarrow a \\
last & :: & [a] \rightarrow a \\
select & :: & [a] \rightarrow Int \rightarrow a \\
middle & :: & [a] \rightarrow a
\end{array}
$$

The function *first* takes a non-empty list and returns the first element of the list; if the list is empty, call *error* with an appropriate message. The *last* function takes a list and returns the last element of the list or calls *error* if the list is empty. The function *select* takes a list (say xs) and an integer (say k) and returns the kth element of the list xs (using zero based indexing). If $k < 0$ or $k \geq length\ xs$ then call *error*. The *middle* function takes a list and returns the middle element – if the list is of even length, you can implement your function to have a leftist or rightist bias – your choice.

You should implement some tests to convince the grader your code works.