Problem 2

An adaptive numerical method continues to update the step (Δt) while a non-adaptive method will use a fixed Δt.
Δt is updated depending on the diffrence in the previous steps. If the function evaluated over the time step has little variation a larger value of Δt will be used for the next step. This is useful if there are regions of the function that are mostly flat, because it allows fewer steps over that region resulting in faster computational time.
Since we are updating Δt there are more calculations to make and the program may be more complex. In gereal, however, it is almost always better to use an adaptive method.