22C:16 Homework 1 Solution

1. Excution trees are in Figures 1 and 2 (next page).

2. (a) The binary equivalent of 1783 is 11011110111

   (b) When we enter *-50*, there is no output. This is because the boolean condition controlling the `while`-loop is never satisfied.

   (c) When we enter `hello`, there is an error message since Python cannot convert this string to an `int`.

3. (a) The output is *1001001*. In this particular case, the output is the binary equivalent of *73* since the binary equivalent of *73* is symmetric, i.e., it is the same read forwards and backwards. Generally, the change in Line 4, however, makes the binary equivalent of the given number appear in the reserve order.

   (b) There is an error message since the "+" operator is not applicable on a string and an int.

   (c) The output is 2201. The output is ternary (base-3) equivalent of the input.

4. See the file `homework1.4.py`.

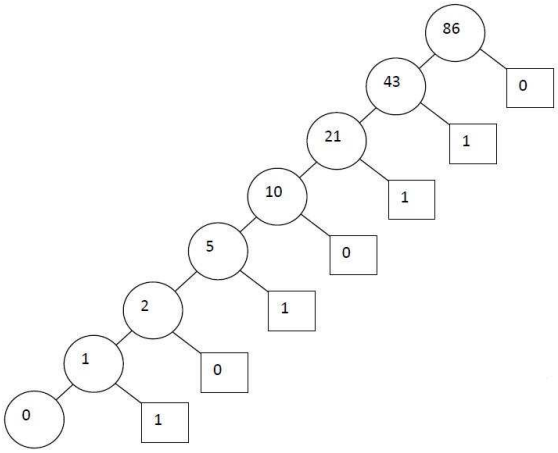

Figure 1: input = 86

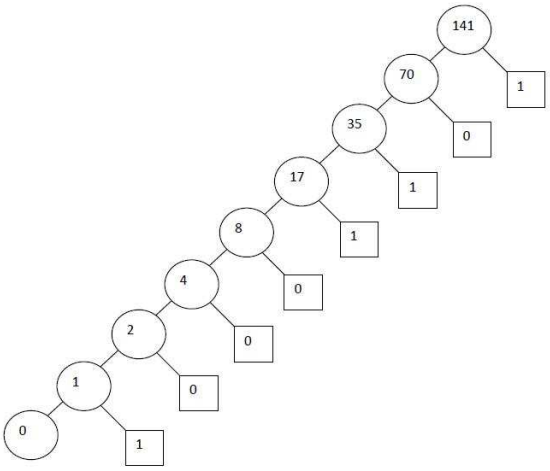

Figure 2: (input = 141)