

5) (10 pts) ALG (Base Conversion)

Write a function that takes a string *str* and an integer *b* (where $2 \leq b \leq 10$), and returns 1 if *str* represents an integer in base *b* that is a perfect power of *b*. For example:

```
isPower("323", 4);    // Return 0.  $323_4 = 59_{10}$ , which is not a power of 4
isPower("27", 3);     // Return 0. 27 is not a valid base 3 integer.
isPower("plum", 8);   // Return 0. plum is not a valid base 8 integer.
isPower("1000", 10);  // Return 1.  $1000_{10}$  is a power of 10 ( $10^3$ )
isPower("000001", 2); // Return 1.  $1_2 = 1_{10}$ , which is a power of 2 ( $2^0$ )
```

Notes: You may assume *b* is always within the range specified above. Your function must return 0 if *str* is NULL or the empty string. Strings may be padded on the left with any number of zeros.

```
// You must use this function signature. You may write helper functions as
// needed.
int isPower(char *str, int b);
```