

CS 1301 – Summer 2009

Homework 3 – Binary Conversion

Due: Friday, September 11th, before 6 PM

(10% late penalty if turned in before Monday, September 14th, before 6 pm)

Scored out of 100 points

File to submit: hw3.py

This is a PAIR PROGRAMMING Assignment: Work with your partner!

For pair programming assignments, you and your partner should turn in identical assignments. Your submission must not be substantially similar to another pairs submission. Collaboration at a reasonable level will not result in substantially similar code. Students may only collaborate with fellow students currently taking CS 1301, the TA's and the lecturer. Collaboration means talking through problems, assisting with debugging, explaining a concept, etc. You should not exchange code or write code for others.

For Help:

- TA Helpdesk – Schedule posted on class website.
- Email TAs

Notes:

- **Don't forget to include the required comments and collaboration statement (as outlined on the course syllabus).**
 - **Do not wait until the last minute to do this assignment in case you run into problems.**
 - If you find a significant error in the homework assignment, please let a TA know immediately.
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Binary Conversion

Your group will write a function **dec2binary(decNum)** that will **return** a string made up of 1's and 0's corresponding to the (positive) decimal number that is the argument.

For example: `dec2binary(255)` should return the string “1111111”, `dec2binary(0)` should return the string “0”, and `dec2binary(5)` should return the string “101”. Your function must work for decimal numbers of any size! You may assume that only positive integers will be used as input.

Your group will write a function **binary2dec(binString)** that will **accept as input** a string made up of 1's and 0's corresponding to a (positive) decimal number.

For example: `binary2dec(“1111111”)` should return the int 255, `binary2dec(“0”)` should return the int 0, and `binary2dec(“101”)` should return the int 5. Your function must work for binary numbers of any size! You may assume that only positive integers will be used as input.

Include these functions in a `hw3.py` file. **Your TA may also ask any group member questions about this binary conversion code at the next recitation, so all group members should understand how it works.**

Binary Conversion Grading Criteria:

dec2binary

Produces correct results for all inputs **30pt**

Function named correctly & returns a string (instead of printing) **10 pt**

Randomly chosen group member could explain **10pt**

binary2dec

Produces correct results for all inputs **30pt**

Function named correctly & returns an int (instead of printing) **10 pt**

Randomly chosen group member could explain **10pt**