Homework #1
Due by Friday 9/22 11:55pm

Submission instructions:
1. You should submit your homework in the NYU Classes system.
2. For this assignment you should turn in 5 files:
   - A '.pdf' file with the base conversions (For questions 1 and 2).
     Make sure to include the conversion calculations, not just the final answer.
     Name your file 'YourNetID_hw1_q1and2.pdf'
   - Four '.py' files, a script for each one of questions 3 - 6.
     Name your files 'YourNetID_hw1_q3.py' and 'YourNetID_hw1_q4.py', etc.

Question 1:
Convert the following numbers to their decimal representation:

a) $10011011_2 =$

b) $1101101_2 =$

c) $3A8_{16} =$

d) $2214_5 =$

Question 2:
Convert the following numbers to their binary representation:

a) $69_{10} =$

b) $485_{10} =$

c) $6D1A_{16} =$

Question 3:
Write a program that asks for the user's name and prints a personalized welcome message for him.

For example, an execution could look like:
Please enter you name:
Mike
Hi Mike, Welcome to CS-UY 1114

Question 4:
Textbook P.80, Q4:
The U.S. Cencus provides information on its web page (http://www.census.gov) about the current U.S. population as well as approximate rates of change.
Three rates of change are provided:
- There is a birth every 7 seconds.
- There is a death every 13 seconds.
- There is a new immigrant every 35 seconds.

These are obviously approximations of birth, death, and immigration rates, but they can assist in providing population estimates in the near term.
Write a program that takes years as input (as a integer) and prints out an estimated population (as an integer). Assume that the current population is 307,357,870, and assume that there are exactly 365 days in a year.
Hint: Note that the rate units are in seconds.

Question 5:
Write a program that asks the user to enter a number of quarters, dimes, nickels and pennies and then outputs the monetary value of the coins in the format of dollars and remaining cents.

Your program should interact with the user **exactly** as it shows in the following example:
Please enter number of coins:
# of quarters: 13
# of dimes: 4
# of nickels: 11
# of pennies: 17
The total is 4 dollars and 37 cents

Question 6:
Write a program that asks the user to enter an amount of money in the format of dollars and remaining cents. The program should calculate and print the minimum number of coins (quarters, dimes, nickels and pennies) that are equivalent to the given amount.

Hint: In order to find the minimum number of coins, first find the maximum number of quarters that fit in the given amount of money, then find the maximum number of dimes that fit in the remaining amount, and so on.

Your program should interact with the user **exactly** as it shows in the following example:
Please enter your amount in the format of dollars and cents in two separate lines:
4
37
4 dollars and 37 cents are:
17 quarters, 1 dimes, 0 nickels and 2 pennies