UNIVERSITY OF SAN FRANCISCO
CHANGE THE WORLD FROM HERE

University of San Francisco
2130 Fulton Street
San Francisco, CA 94117
usfca.edu

Lab 3

Objectives

- Practice with functions
- Learn about function parameters
- Use random numbers

Problems

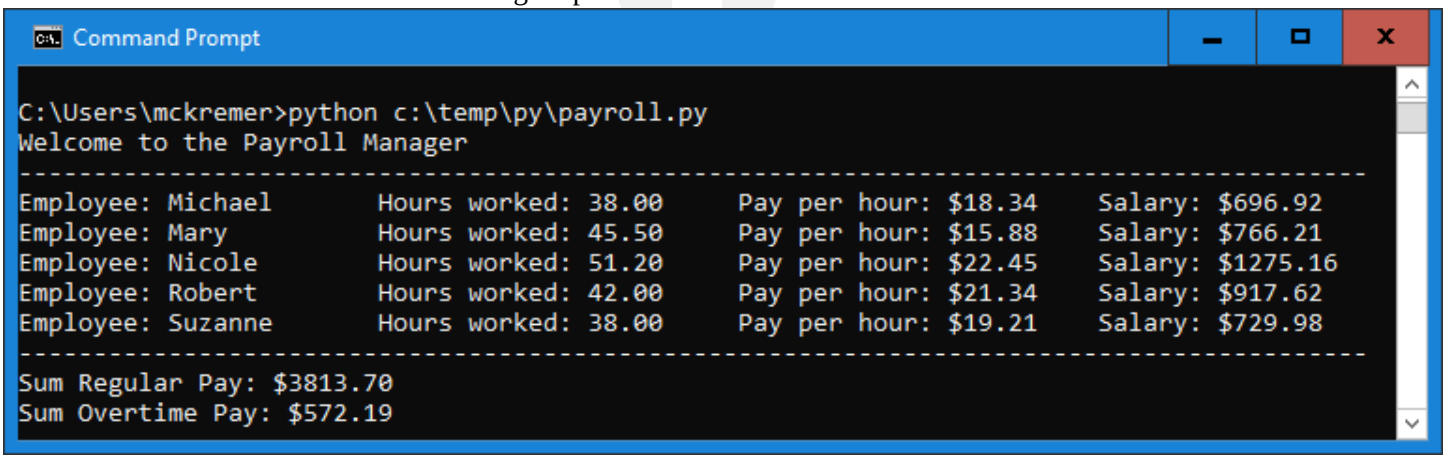
1. Payroll calculator (25 points)

   Write a Python program (payroll.py) that consists of two functions:
   - main
   - fPayroll

   In function main do the following:
   - Print a message that says "Welcome to the Payroll Manager!"
   - Perform five calls to the fPayroll function with various names, hours worked, and pay rates (see output below)
   - Aggregate the regular pay and overtime pay over the five function calls and display them below the previous output (see output below)

   In function fPayroll do the following:
   - Define three parameters: employee name, hours worked that week, and pay rate in dollars per hour
   - Calculate the employee's salary as the number of hours worked multiplied by the pay rate
   - If the employee has worked more than 40 hours, then calculate overtime as 1.5 times the regular pay rate and add that to the salary (total salary)
   - Print the name, hours worked, pay rate and the total salary as shown below in the output
   - Return the regular pay and the overtime pay

Use the test data as shown in the following output:



University of San Francisco
2130 Fulton Street
San Francisco, CA 94117
usfca.edu

2. Rock, Paper, Scissors Game (25 points)

The Rock, Paper, Scissors game rules are as follows:

- If both the computer and the player pick the same (rock/paper/scissors), it is a tie
- Rock beats scissors
- Paper beats rock
- Scissors beat paper

Write a Python program (rockpaperscissors.py) that consist of three functions:

- Main
- fComputerRPS (RPS = Rock Paper Scissors)
- fDetermineWinner

Import the random module into your program

In function fComputerRPS do the following:

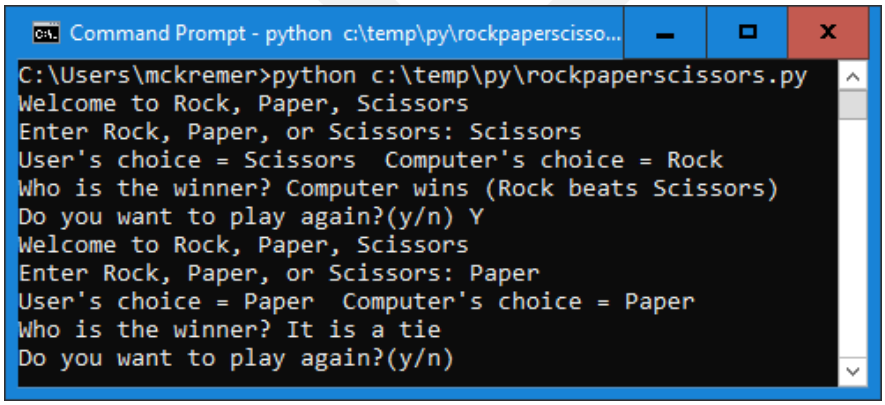
- Use the random number generator to return one of "rock", "paper", or "scissors"

In function main() do the following:

- Print a welcome message to the user
- Ask the user for their choice - rock/paper/scissors
- Perform input validation and only accept valid input, if validation fails, display input again (loop)
- Call the fComputeRPS() function and save the returned "computer's choice" value in a variable
- Display the user's choice and the computer's choice (see output below)
- Display the winner by calling function fDetermineWinner (see output below)
- Ask the user whether they want to play again, accept lowercase and uppercase y as acceptable input
    - If yes, then call function main again

In function fDetermineWinner do the following:

- Define two input parameters, the user's choice and the computer's choice (Rock, Paper, or Scissors)
- Based on the rules mentioned above, determine whether it is a tie, or whether the computer won or whether the player won
- Return a string summarizing the outcome of the game (this string will be displayed in function main), for example:
    - Computer wins (Paper beats Rock) or User wins (Rock beats Scissors)



University of San Francisco
2130 Fulton Street
San Francisco, CA 94117
usfca.edu

Upload the following files to Canvas:

- 1 screenshot of executed code in command line/terminal window for the payroll.py file (either paste into Word document or as an image)
- 1 screenshot of executed code in command line/terminal window for the rockpaperscissors.py file with at least 2 plays (either paste into Word document or as an image)
- Text files of your code named payroll.py and rockpaperscissors.py (put your name and section as comments at the top of files)
- README.txt file - A description of your lab with your name and your student ID. Please include any problems you faced, any resources you used, names of friends/tutors you received help from

Notes:

- Do not use phantom numbers in your code, use meaningful constants instead
- Your code should contain some meaningful comments
- Your code should be well organized and formatted