CIS 125 Principles of Programming Logic
Exam #1: Input Process Output Functions
100 points

Directions

Complete the following two Python programs. Program #1 is worth 60 pts. Program #2 is worth 40 pts. There is an extra credit program work 5 points.

Late submissions cannot be accepted. The exam is open book, open note, open Internet. However, you cannot receive live assistance from anyone or post questions on discussion forums, i.e. any resources you must already exist.

Academic Honestly Policy

Students are expected to uphold the school's standard of conduct relating to academic honesty. It is imperative that standards of academic integrity be upheld for the best interest of the student, college, community, and industry. For more information on the course academic honestly policy, please review the course syllabus.

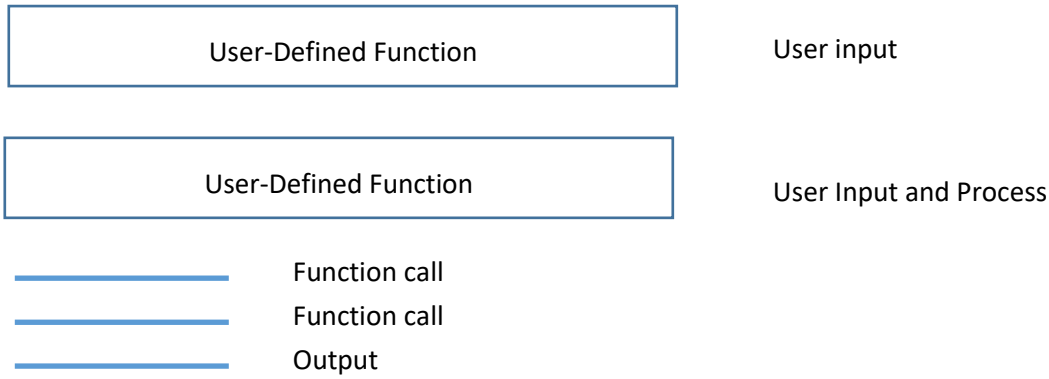
Program #1: Built-In Functions - Employee's Gross Pay (60 pts)

- Create a Python program named **exam1-1.py**
- Create **two user-defined functions**
    - Name the first function **getEmpName**. Pass no data into it. The function will do two things:
        - **Prompt** the user for an employee name as a string.
        - Pass (**return**) this name back to main part of the program
    - Name the second function **getRate**. Pass no data into it. The function will do three things:
        - **Prompt** the user for an hourly pay rate as a float
        - **Calculate** employee gross pay by multiplying this rate by 40
        - Pass (**return**) this gross pay back to main part of the program
- The main part of the program will do three things:
    - Call the first function (no data in/data out) – get employee name
    - Call the second function (no data in/data out) – calculate gross pay
    - Produce the final output – employee name and gross pay (see below example).

Sample Run (based on user input of Mark and 15)

```
Please enter employee name: Mark
Please enter hourly pay rate: 15
Mark's gross pay is $600.00
```

Program #1 Code Organization Diagram (both functions: no data in/data out)



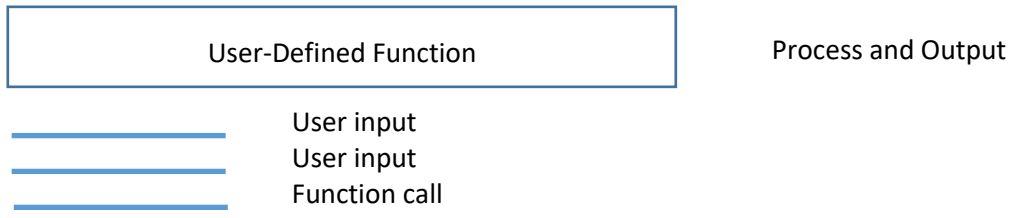
Program #2: Built-In Functions – Area of Triangle (40 pts)

- Create a Python program named **exam1-2.py**
- Ask for **two user inputs in the main** part of the program
  - Length of base side of a triangle as a float
  - Length of height side of a triangle as a float
- Next, in **the main part** of the program, call a user defined function and pass these two user inputs into it. Inside the function:
  - **Calculate** the area of the triangle by multiplying (base times height) / 2
  - **Output** the final message to the user as shown in the example below.

Sample Run (based on user input: 10 and 22)

Please enter length of triangle base side: 10
Please enter length of triangle height: 22
The area of the triangle is 110.00

Program #2 Code Organization Diagram (both functions: two data in/no data out)

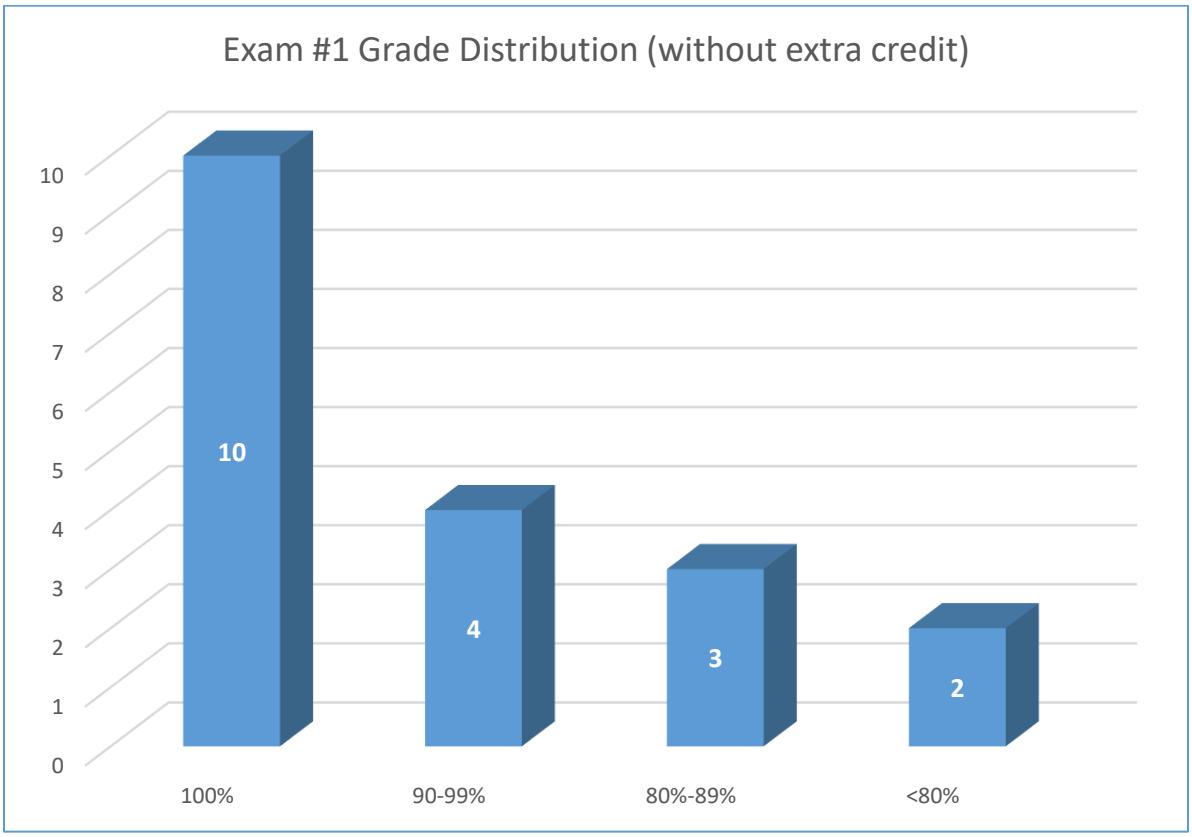


Extra Credit: Numbers and Functions (+5)

- Create a Python program named **exam1-ec.py**
- No user-defined functions are needed
- In the main, prompt the user to enter a float value as shown below in the sample run
- Next, produce the four output lines shown below that do the following:
    - Cast the user inputted number to an integer
    - Display the user inputted number out to the thousandths decimal place
    - Round the number higher to an integer
    - Round the number lower to an integer

Sample Run (based on user input: 3.1)

Enter a float value: 3.1
Your input casted as an integer is 3
Your input rounded to the thousandths place is 3.100
Your input rounded higher as an integer is 4
Your input rounded lower as an integer is 3



- 12 extra credit submissions – thank you!

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Answer Key

Program #1: Built-In Functions - Employee Gross Pay (60 pts)

```
def getEmpName():
    name = input("Please enter employee name: ")
    return name

def getRate():
    rate = float(input("Please enter hourly pay rate: "))
    gross_pay = rate * 40
    return gross_pay

name = getEmpName()
gross_pay = getRate()
print(name + "'s gross pay is $%.2f" % gross_pay)
```

Program #2: Built-In Functions – Area of Triangle (25 pts)

```
def calcTriangleArea(base, height):
    area = .5 * (base * height)
    print("The area of the triangle is %.2f" % area)

base = float(input("Please enter length of triangle base side: "))
height = float(input("Please enter length of triangle height: "))
calcTriangleArea(base, height)
```

Extra Credit: Numbers and Functions (+5)

```
import math
num = float(input("Enter a float value: "))

print("Your input casted as an integer is", int(num))
print("Your input rounded to the thousandths place is %.3f" % num)
print("Your input rounded higher as an integer is", math.ceil(num))
print("Your input rounded lower as an integer is", math.floor(num))
```