

100 intro to computer science. final exam. 2010.

Total XP: 250

HOW TO SUBMIT: Because I am old and have a hard time reading the script of the young, please submit your answers typed (PDF preferred) to submit.o.bot@gmail.com. (subject line: 110 exam submission)

1. average (25 XP)

I asked students to create a function that asked a user for a series of numbers and return the sum. One student submitted the following code:

```
def sum():
    num = input("enter a number: ")
    while num != '':
        total += num
        num = input("enter a number: ")
    return(total)
```

There are 2 errors that prevent the function from working. What are the errors and how would I fix the program?

2. formatDate (25 XP)

I asked a student to write a function that would format a date. That is, it would take a date like 05-06-51 and print out *May 6, 1951* or a date like 10-28-10 and print out *October 28, 2010*. Here is the code the student wrote:

```
def formatDate(aDate):
    """Takes a date in the form of 05-10-95 and prints May 10, 1995
    I need this to work for dates between 1950 and the present"""
    months = ['January', 'February', 'March', 'April', 'May', 'June',
              'July', 'August', 'September', 'October', 'November',
              'December']
    # take a date like 05-10-95 and split it to ['05', '10', '95']
    theDate = aDate.split('-')
    mo = int(theDate[0])
    month = months[mo]
    day = int(theDate[1])
    year = 1900 + int(theDate[2])
    print("%s %i, %i" % (month, day, year))
```

Unfortunately, this doesn't seem to work as it gives the wrong output for the two dates listed above. Describe the two errors and fix the function.

3. Factorial (25)

Recall that factorial is the result of multiplying a given number of consecutive integers from 1 to the given number. So $3!$ is $1 * 2 * 3 = 6$ and $5!$ is $1 * 2 * 3 * 4 * 5 = 120$. I tried to write a function that computes factorial but it doesn't give me the correct answer.

```
def factorial(n):
    total = 0
    while n > 0:
        total = total + 1
        n -= 1
    return total
```

Please fix the errors.