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Homework Assignment Report

JILIN UNIVERSITY OF FINANCE AND ECONOMICS

College of Managment Science and Information Engineering

BSc in Data Science and Big Data Technology

(2021)

MODULE: Intelligent Technology

Homework Assignment: 01

Variables and Operators

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Instructions:

1. I have added tips and required learning resources for each question, which helps you to solve the problems.
2. Finish the assignment on your **OWN**. **Any student find copying/sharing from classmates or internet will get '0' points!!!**

3. Accept this assignment from → GitHub Clasroom link (https://classroom.github.com/a/E8YXLgc4). This will create a private repository of the assignment in your GitHub Classroom account.
4. In your repository Clone → Download ZIP on your computer.
5. Change your → **College**, **Major**, **Name**, **Student number**, **Class number**, **QQ number** and **GitHub ID**
6. Once you finish the Assignment convert your .ipynb file into PDF (https://github.com/milaan9/91_Python_Mini_Projects/tree/main/001_Convert_IPython_to_PDF) (both **.ipynb** and **.pdf** file will be required!)
7. To submit your assignment, go to GitHub Classrom repository and Add file → Upload files → Commit changes
   A. Replace the question (**.ipynb**) file with your solution (**.ipynb**) file.
   B. Also, upload (**.pdf**) converted file of your solution (**.ipynb**) file.

Python Assignment 01

Part A → Variables Level 1

1. Write a python comment saying `Python variables and Constants`
2. Declare a `first_name` variable and assign a value to it
3. Declare a `last_name` variable and assign a value to it
4. Declare a `full_name` variable and assign a value to it
5. Declare a variable `is_light_on` and assign a value to it
6. Declare multiple variable on one line

In [11]:
```
counter = 100
miles = 1000.0
name = "John"
flag = True  #variables
AGE_OF_YOU = 21 #Constants
First_name = "Alex"
Last_name = "Ding"
Full_name = ("Alax Ding")
is_light_on = ("abc")
a=b=c=1
print(First_name)
print(Last_name)
print(Full_name)
```

```
<class 'float'>
Alex
Ding
Alax Ding
```

Part B → Variables Level 2

1. Check the data type of all your variables using `type()` built-in function
2. Using the `len()` built-in function, find the length of your first name
3. Compare the length of your `first_name` and your `last_name`
4. Declare **6** as `num_1` and **4** as `num_2`
   A. Add `num_1` and `num_2` and assign the value to a variable `total`
   B. Subtract `num_2` from `num_1` and assign the value to a variable **difference`**
   C. Multiply `num_2` and `num_1` and assign the value to a variable `product`
   D. Divide `num_1` by `num_2` and assign the value to a variable `division`
   E. Use modulus division to find `num_2` divided by `num_1` and assign the value to a variable `remainder`
   F. Calculate `num_1` to the power of `num_2` and assign the value to a variable `exp`
   G. Find floor division of `num_1` by `num_2` and assign the value to a variable `floor_division`
5. Use the built-in `input()` function to get first name, last name, country and age from a user and store the value to their corresponding variable names
6. The radius of a circle is **30 meters**.

A. Calculate the area of a circle and assign the value to a variable name of `area_of_circle` by taking user `input()`
B. Calculate the circumference of a circle and assign the value to a variable name of `circum_of_circle` by taking user `input()`
C. Take radius as user `input()` and calculate the area.

7. Run help (`keywords`) in Python shell or in your file to check for the Python reserved words or keywords

In [ ]:
```
counter = 100
miles = 1000.0
name = "Alex"
flag = True
print(type(counter))
print(type(miles))
print(type(name))
print(type(flag))
print(len(name))
```

In [ ]:
```
First_name = "Alex"
Last_name = "Ding"
n1 =  len(First_name)
n2 =  len(Last_name)
if n1>n2 :
    print (n1),
if n1==n2:
    print (n1,n2)
if n1<n2:
    print(n2)
```

In [ ]:
```
num_1 = 6
num_2 = 4
tolal = num_1+ num_2
difference= num_1 - num_2
product = num_1 * num_2
division = num_1/ num_2
remainder = num_2%num_1
exp = num_1**num_2
floor_division = num_1//num_2
```

In [ ]:
```
first_name = input("Enter first_name: ")
last_name = input("Enter last_name:")
country = input("Enter coumtry:")
old = input("Enter old:")
```

In [1]:
```
r = 30
pi = 3.14
area_of_circle = 0.5*pi*r*r
circum_of_circle = 2*pi*r
print(area_of_circle)
print(circum_of_circle)
```

```
1413.0
188.4
```

Part C → Operators Level 1

1. Declare your age as integer variable
2. Declare your height as a float variable
3. Declare a variable that store a complex number
4. Write a code that prompts the user to enter base and height of the triangle and calculate an area of this triangle (area = 0.5 x b x h).

```
Enter base: 20
Enter height: 10
The area of the triangle is 100
```

5. Write a code that prompts the user to enter side a, side b, and side c of the triangle. Calculate the perimeter of the triangle (perimeter = a + b + c).

```
Enter side a: 5
Enter side b: 4
Enter side c: 3
The perimeter of the triangle is 12
```

6. Get length and width of a rectangle using prompt. Calculate its area (**area = length x width**) and perimeter (**perimeter = 2 x (length + width)**)
7. Get radius of a circle using prompt. Calculate the area (**area = pi x r x r**) and circumference (**c = 2 x pi x r**) where pi = 3.14.
8. Calculate the slope, x-intercept and y-intercept of $y = 2x - 2$

9. Slope is ($m = (y2 - y1)/(x2 - x1)$). Find the slope and Euclidean distance (https://en.wikipedia.org/wiki/Euclidean_distance#:~:text=In%20mathematics%2C%20the%20Euclidean%20distance,being%20called%20t between point (2, 2) and point (6,10)
10. Compare the slopes in tasks 8 and 9.
11. Calculate the value of y ($y = x^2 + 6x + 9$). Try to use different x values and figure out at what x value y is going to be 0.
12. Find the length of 'python' and 'datascience' and compare if the length are same using `==`.
13. Use `and` operator to check if `on` is found in both `python` and `cannon`
14. `I hope this course is not full of jargon.` Use `in` operator to check if `jargon` is in the sentence.
15. There is no `on` in both `python` and `cannon`
16. Find the length of the text `python` and convert the value to float and convert it to string
17. Even numbers are divisible by 2 and the remainder is zero. How do you check if a number is even or not using python?
18. Check if the floor division of 7 by 3 is equal to the int converted value of 2.7.
19. Check if type of **"10"** is equal to type of 10
20. Check if int(**"9.6"**) is equal to 10
21. Write a code that prompts the user to enter hours and rate per hour. Calculate pay of the person?

```
Enter hours: 40
Enter rate per hour: 30
Your weekly earning is 1200
```

22. Write a script that prompts the user to enter number of years. Calculate the number of seconds a person can live. Assume a person can live hundred years

```
Enter number of years you have lived: 100
You have lived for 3153600000 seconds.
```

23. Write a Python code that displays the following table

```
1 2 3 4 5
2 4 6 8 10
3 6 9 12 15
4 8 12 16 20
5 10 15 20 25
```

In [23]:
```
#1
age=19
print(age)
#2
height = 144.1
print(height)
#3
n=4+67j
print(n)
#4
base = float(input("Enter base:"))
height = float(input("Enter heigt:"))
area = 0.5*base*height
print("The area of the triangle is",area)
#5
a= float(input("Enter side a:"))#9
b= float(input("Enter side b"))
c= float(input("Enter side c"))
perimeter = a+b+c
print("The perimeter of the triangle is",perimeter)
#6
lenght = float(input("Enter lenght:"))
width = float(input("Enter width:"))
area = lenght*width
perimer = 2*(lenght+width)
print("area is ",area)
print("perimeter is",perimeter)
#7
pi= 3.14
r= float(input("Enter r:"))
area = pi*r*r
print("area is",area)
print("c is",c)
#8
x1 = 0
y1 = 2*x1-2
y2 = 0
x2=(y2+2)/2
slope = (y2+y2)/(x1-x2)
print("slope is",slope)
print("x-intercept is",x2)
```

```
print("y-intercept is",y1)
#9
x3= 2
y3= 2
x4 = 6
y4 = 10
xielv = (y3-y4)/(x3-x4)
Euclidean = ((x3-x4)**2+(y3-y4)**2)**0.5
print("xielv is",xielv)
print("Euclidean distance is",Euclidean)
#10
if slope>xielv:
    print("8 big")
elif  slope<xielv:
    print("9 big")
else:
    print("same")
    #11
x= float(input("Enter x:"))
y=x*x+6*x+9
print("y=",y)
#12
p = len("python")
d = len("datascicence")
if p==d:
    print("same")
else:
    print("no")
#13
py ="python"
ca ="cannon"
w = "on"
py1 = w in py
ca1 = w in ca
print(py1)
print(ca1)
py1 and ca1
#14
i = "I hope this course is not full of jargon"
j = "jargon"
result = j in i
print(result)
```

```
#15
print(py.replace('on',''))
print(ca.replace('on',''))
#16
pyt="python"
long = float(len(pyt))
zifuchuan = str(len(pyt))
print(long)
print(zifuchuan)
#17
number = float(input("Enter number"))
if number%2==0:
    print("number is even number")
else :
    print("number is uneven number")
#18
e = 7//3
f=2.7
g=int(f)
if e==g:
    print("same")
else:
    print("no")
#19
k = type("10")
m = type(10)
if k==m:
    print("same")
else:
    print("no")
#20
n = int(9.6)
if n==10:
    print("same")
else:
    print("no")
#21
time = float(input("Enter hours:"))
rate = float(input("Enter rate per hour:"))
salary = time*rate
print("Your weekly earning is",salary)
#22
```

```
year = float(input("Enter number of years you have livied:"))
s = year*365*24*60*60
print("You have lived for",s,"seconds")
#23
print("1 2 3 4 5\n2 4 6 8 10\n3 6 9 12 15\n4 8 12 16 20\n5 10 15 20 25")
```

```
19
144.1
(4+67j)
Enter base:5
Enter heigt:5
The area of the triangle is 12.5
Enter side a:5
Enter side b5
Enter side c5
The perimeter of the triangle is 15.0
Enter lenght:5
Enter width:5
area is  25.0
perimeter is 15.0
Enter r:5
area is 78.5
c is 5.0
slope is -0.0
x-intercept is 1.0
y-intercept is -2
xielv is 2.0
Euclidean distance is 8.94427190999916
9 big
Enter x:5
y= 64.0
no
True
True
True
pyth
cann
6.0
6
Enter number5
number is uneven number
```

```
same
no
no
Enter hours:5
Enter rate per hour:5
Your weekly earning is 25.0
Enter number of years you have livied:5
You have lived for 157680000.0 seconds
1 2 3 4 5
2 4 6 8 10
3 6 9 12 15
4 8 12 16 20
5 10 15 20 25
```

In [ ]: