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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. After `Accepting this assignment` from ➞ GitHub Clasroom link (https://classroom.github.com/a/E8YXLgc4), Github will create private repository of the assignment in your GitHub Classroom account.
4. In your repository `Clone` ➞ `Download ZIP` in 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 Classroom 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 [ ]:

```
# Solution:
first_name="Bo"
print(first_name)

last_name="Wang"
print(last_name)

full name="WangBo"
print(full name)

is_light_on=4
print(is_light_on)

age,country, language=(19,"China","Python")
print(age)
print(country)
print(language)
```

Part B → Variables Level 2

> **Note:** Please create new cell for each question

1. Check the data type of all your variables using type() (https://github.com/milaan9/04_Python_Functions/blob/main/002_Python_Functions_Built_in/064_Pyt built-in function
2. Using the len() (https://github.com/milaan9/04_Python_Functions/blob/main/002_Python_Functions_Built_in/040_Pyt 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()** **(https://github.com/milaan9/04_Python_Functions/blob/main/002_Python_Functions_Built_in/032_Pyt** 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()** **(https://github.com/milaan9/04_Python_Functions/blob/main/002_Python_Functions_Built_in/032**
   B. Calculate the circumference of a circle and assign the value to a variable name of `circum_of_circle` by taking user **input()** **(https://github.com/milaan9/04_Python_Functions/blob/main/002_Python_Functions_Built_in/032**
   C. Take radius as user **input()** **(https://github.com/milaan9/04_Python_Functions/blob/main/002_Python_Functions_Built_in/032** 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 [ ]:

```
print(type(first_name))
print(type(last_name))
print(type(full_name))
print(type(is_light_on))

print(len(first_name))

print(len(first_name)>len(last_name))

num_1=6
num_2=4
total=num_1+num_2
print
(total)

num_1=6
num_2=4
difference=num_1-num_2
print (difference)

product=num_1*num_2
print(product)

division=num_1/num_2
print(division)

remainder=num_2%num_1
print (remainder)

exp=num_1**num_2
print (exp)

floor_division=num_1//num_2
print(floor_division)


first_name=str(input())
print(first_name)
last_name=str(input())
print(last_name)
country=input()
print(country)
age=input()
print(age)

r=30
area_of_circle=3.14*r*r
print(area of circle)
area of circle=input()
print(area_of_circle)

r=30
circum_of_circle=2*3.14*r
print(circum_of_circle)
circum of circle=input()
print(circum_of_circle)

r=int(input())
area=3.14*r*r
```

```
print(area)

help(int)
help(float)
```

Part C → Operators Level 1

> **Note:** Please create new cell for each question

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%20Euclidea](https://en.wikipedia.org/wiki/Euclidean_distance#:~:text=In%20mathematics%2C%20the%20Euclidea) 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 **using operators**

    - 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 [ ]:

```
# Solution:
age=int("20" )
print (age)

heixht=float("165.5" )
print (height)

x=complex( "3+j" )
print(x)

b=int(input("Enter b:
h=int(input("Enter h:"))
area=1/2*b*h
print (area)

a=int(input("Enter a:"))
b=int(input("Enter b:"))
c=int(input("Enter c:"))
perimeter=a+b+c
print(perimeter)

length=int(input("Enter length:
width=int(input("Enter width:
area=length*width
perimeter=2*(length+width)
print(area)
print(perimeter)
pi=3.14

r=int(input("Enter r:
area=pi*r*r
c=2*pi*r
print(area)
print(c)

c=-2
a=2
b=-1
slope_1=-b/a
x=-c/b
y=-c/a
print(slope_1)
print(x)
print(y)

import math
slope 2=8*4
x=4*4+8*8
distance=math.sqrt(x)
print(slope 2)
print(distance) 8

slope_1>slope_2

x=int(input())
print(y)
y=x*x+6*x+9

x=len("python" )
```

```
y=len("datascience'
x==y

("on"in "python")and("on"in "cannon")

jargon"in "I hope this course is not full of jargon.

("on"in"python")or("on"in"cannon"

x=len("python"
y=float(x)
print(y)

x=int(input())
if(x%2==0):
print("是偶数")
else:
print("不是偶数")

x=2.7
int(x)
y=7//3
x==y

type("10")==type(10)
x=9.6

y=int(x)
y==10

hours=int(input("Enter hours:"))
rate_per_hour=int(input("Enter rate per hour:
earning=hours*rate_per_hour
print(earning)

years=int(input("Enter years:
second=years*365*24*60*60
print(second)

print(1, 2, 3, 4, 5)
print(2, 4, 6, 8, 10)
print(3, 6, 9, 12, 15)
print(4, 8, 12, 16, 20)
print(5.10. 15. 20.25)
```