Assignment 01

Fall 2023 PF (due: 09-10-23)

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1. **What is the difference between compilation and interpretation, explain with example(s)?**

**1. Compilation** is the process of translating the entire source code of a program into machine code. Compiled programs tend to be faster in execution because the translation to machine code has already been done.

**Example:** For instance, in a certain, you write a source code file (e.g., "myprogram.py"), then use a compiler to generate an executable file (e.g., "myprogram.exe"). Once compiled, you can run "myprogram.exe" as many times as needed without recompilation.

**2. Interpretation** translates the source code line-by-line or statement-by-statement at runtime. Interpreted languages are typically more flexible as you can modify and execute code on-the-fly without the need for recompilation.

**Example:** Python, Ruby, and JavaScript are examples of interpreted languages. For example, in Python, you can open an interactive shell and execute code line by line.

1. **What is the difference between a compiler and an interpreter, in the context of translation of a computer programming?**

**Compilers and interpreters** are two different types of software that perform the translation from high-level programming code to machine code in distinct ways.

**1. A compiler** translates the entire source code of a program into machine code or an intermediate code in a single batch before execution. It produces a separate executable file.

**2.** **An interpreter** translates the source code line-by-line or statement-by-statement at runtime. It doesn't produce a separate executable file but directly interprets and executes the code.

1. **Provide at least 12 examples of different assignment statements in Python language, we have discussed in our class sessions.**

a= 8

A=float(8)

Avrg= (2+5+6)/3

Name= “umair”

Z = ascii(asjjkas)

Subject = Python

Square= 2\*2

pi = 3.14

cube = (3\*3\*3)

x = 4\*\*(1/2)

lenth = len(Umair)

is\_student = True

1. **Provide at least 5 examples of input statements in Python language, each reasonably different from other, i.e., the difference should be other than name of variables used?**

A = input(“Name: ”)

B = int(input(“enter a value”))

height = float(input(“enter height in meters”))

z = int(input(“enter 2 values separated by space”))

password = int(input(“enter your mobile PIN”))

1. **Describe, without using loops (i.e., only using assignments and output instructions) how can we print counting from 1 to many thousands.**

Print(1)

Print(2)

….

….

Print(n)

1. **Write a program that interactively get a positive integer from user and if that number is even number it prints *True* otherwise prints *False*.**

a= int(input("Enter a positive integer: "))

a=a%2

if a==0 :

print("True")

else:

print("False")

1. **Write a program that interactively get user’s last name and then first name and later print them in correct order (i.e., first\_name last\_name) on one line.**

a= input("Enter your last name: ")

b= input("Enter your first name: ")

print(b, a)

1. **Write a program that compute volume of a cylinder after interactively getting its length (or height) and diameter of its base.**

h= int(input("Enter the height of cylider: "))

d= int(input("Enter the diameter of cylinder: "))

r=d/2

x= (3.14159)\*(r\*\*2)\*h

print(x)

1. **Write a program that plays a game with you with following interaction.**

**Hi, guess a number between 50 and 50000 in your mind**

**Guessed? \_\_\_** *[enter yes or y]*

**Good, add same from my side and remember the total**

**Added? \_\_\_** *[enter yes or y]*

**Good, just 30 more and remember the total**

**Added? \_\_\_** *[enter yes or y]*

**Nice, give half of above total as charity, and give my side back to me**

**Given? \_\_** *[enter yes or y]*

**Hurray‼, let me tell you, you left with 15**

**Isn’t? \_\_** *[enter yes/no or y/n]*

**Thanks, bye**

a = input("Hi, guess a number between 50 and 50000 in your mind, Guessed? enter [yes/no or y/n]: ")

if a == "yes" or a== "y":

print("Good, add same from my side and remember the total, Added? ")

a = input("[enter yes/no or y/n] ")

if a == "yes" or a=="y":

print("Good, just 30 more and remember the total, Added? ")

a = input("[enter yes/no or y/n] ")

if a == "yes" or a=="y":

print("Nice, give half of above total as charity, and give my side back to me, Given? ")

a = input("[enter yes/no or y/n] ")

if a == "yes" or a=="y":

print("Hurray‼, let me tell you, you left with 15 Isn’t? ")

a = input("[enter yes/no or y/n] ")

if a == "yes" or a=="y":

print("Thanks, bye")

1. **Search (Google) for PYTHON sample programs for absolute beginners, select about 5 from them, interpret them in Mu Editor (or somehow) and submit their code (sequence of instruction).**

Write a program to print even numbers from 1 to N.Take N input from user.

**Solution:**

n= int(input("Enter a number: "))

i= 0

print("Even numbes at the given value are: ")

while i<=n:

print(i)

i=i+2

Write a program to print the following pattern.

Let n is input

N = 5

\*

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N = 3

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**\*\*\***

**Solution:**

n= int(input())

i=1

r="\*"

while i<=n:

print(r)

r=r+ "\*"

i=i+1

Write a program to print following pattern

N = 5

\*

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**Solution:**

n= int(input())

i=1

while i<=n:

print(" "\*(n-i),end="")

print("\*"\*i)

i=i+1

Write a program to print following pattern

N = 5

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**Solution:**

n= int(input())

i=1

while i<=n:

print(" "\*(i-1),end="")

print("\*"\*(n+1-i))

i=i+1

Write a function to check whether the number is prime or not.

**Solution:**

**def isprime(n):**

**i=2**

**while i<n:**

**if n%i==0:**

**return False**

**i=i+1**

**return True**