X

Week 1 : Assignment 1

The due date for submitting this assignment has passed.

Due on 2024-08-07, 23:59 IST.

Assignment submitted on 2024-08-06, 16:40 IST

1) The cat wants to move 100 steps away slowly, and by the time it finishes moving 100 steps, it needs to slowly rotate as well towards the opposite direction. Can both these tasks be accomplished by using single loop in scratch? ***1 point***

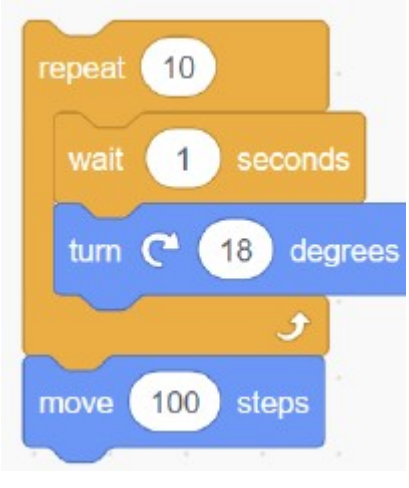
- (•) Yes
- ( ) No

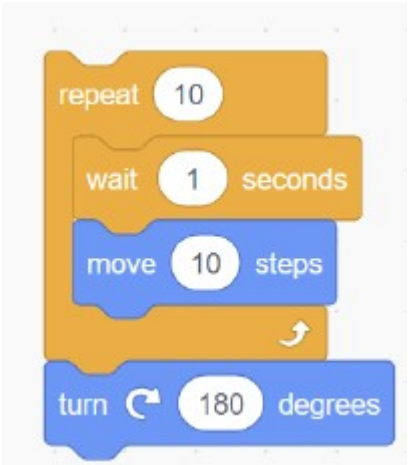
Yes, the answer is correct.
Score: 1

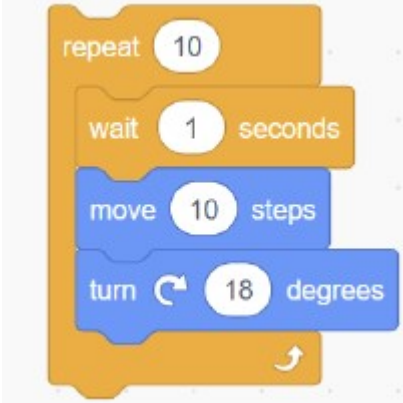
Accepted Answers:
Yes

2) Which block moves the cat as described in the previous question ? ***1 point***

( )

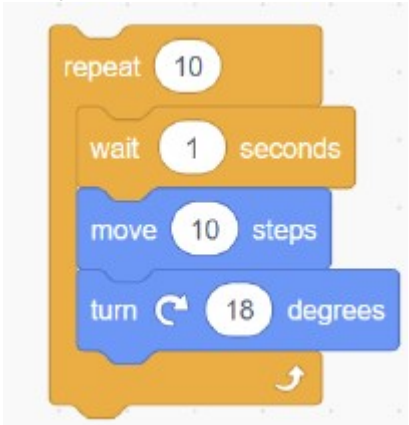




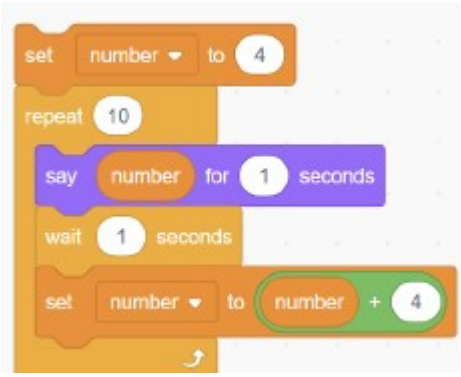


Yes, the answer is correct.
Score: 1

Accepted Answers:



3) What does the cat say here ? ***1 point***



- Says the number 4, for 1 second, 10 times and changes the value of number variable by multiplying previous value with 4.
- Says the number 4, for 1 second, 10 times and changes the value of number variable by adding previous value with 4.
- Says the number 4, and its multiples each for 1 second, till 40 and changes the value of number variable by multiplying previous value with 4.
- (selected) Says the number 4, and its multiples each for 1 second, till 40 and changes the value of number variable by adding previous value with 4.

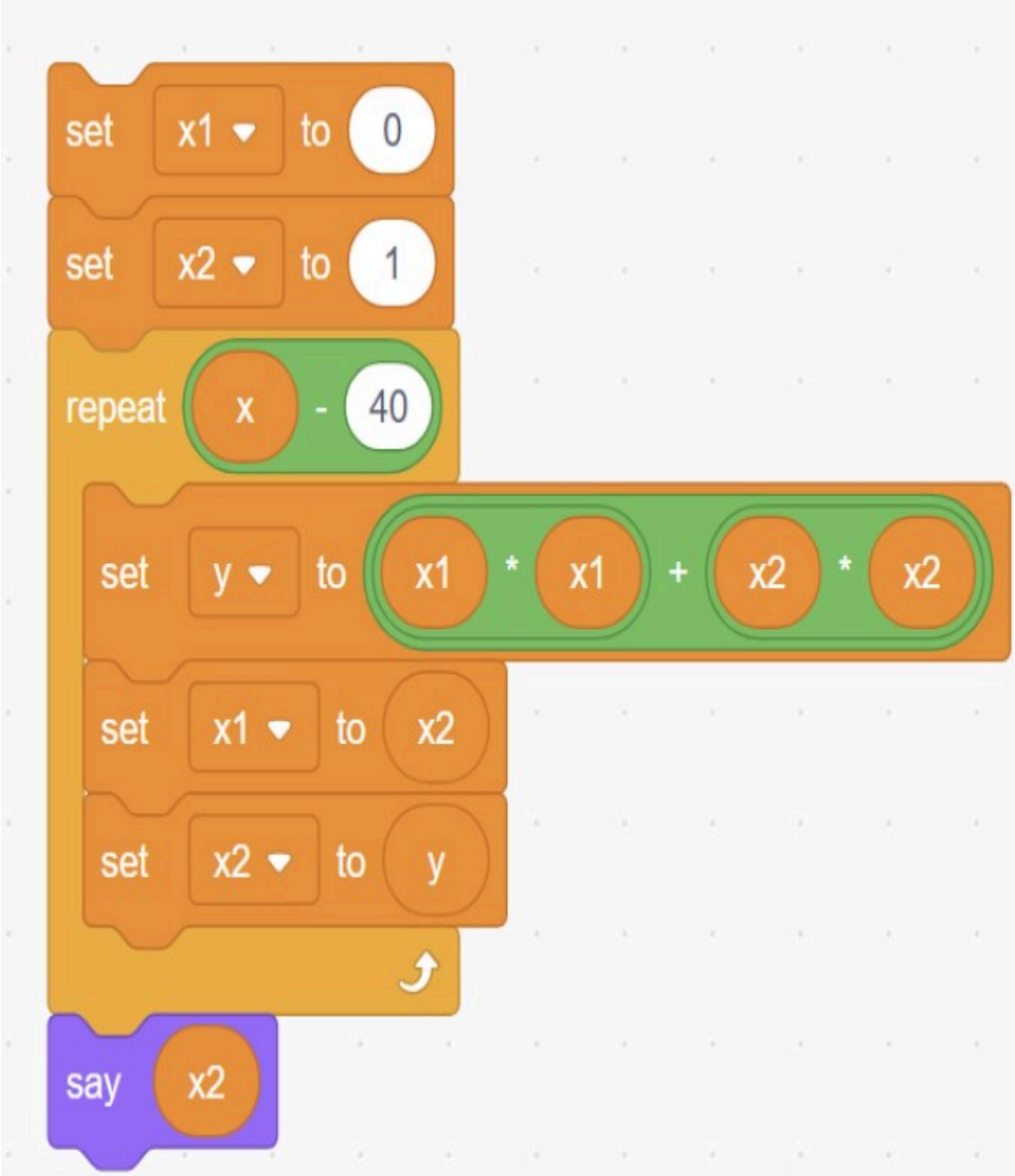
Yes, the answer is correct.
Score: 1
Accepted Answers:
Says the number 4, and its multiples each for 1 second, till 40 and changes the value of number variable by adding previous value with 4.

4) From the previous question, what is the value of number variable after the loop ends ? ***1 point***

- 40
- (selected) 44
- 36
- 4

Yes, the answer is correct.
Score: 1
Accepted Answers:
44

5) Let answer for previous question be stored in variable x, what does the cat say after the execution of the loop ? ***1 point***



- 16
- 5
- 29
- 44

Yes, the answer is correct.
Score: 1

Accepted Answers:
29

6) Which of the following is use case of variables in programming. ***1 point***

- They are used to make the computer store program data into SSD.
- They help in storing and retrieval of information/data while a task on the machine is running.
- They simplify a task which involves processing repetitive procedures.They simplify a task which involves processing repetitive procedures.

They help in running multiple tasks parallel to each other.

Yes, the answer is correct.
Score: 1

Accepted Answers:
They help in storing and retrieval of information/data while a task on the machine is running.

7) What is the concept that helps in instructing the computer to execute repetitive tasks ? ***1 point***

- Functions
- Variables
- Conditionals
- Loops

Yes, the answer is correct.
Score: 1

Accepted Answers:
Loops

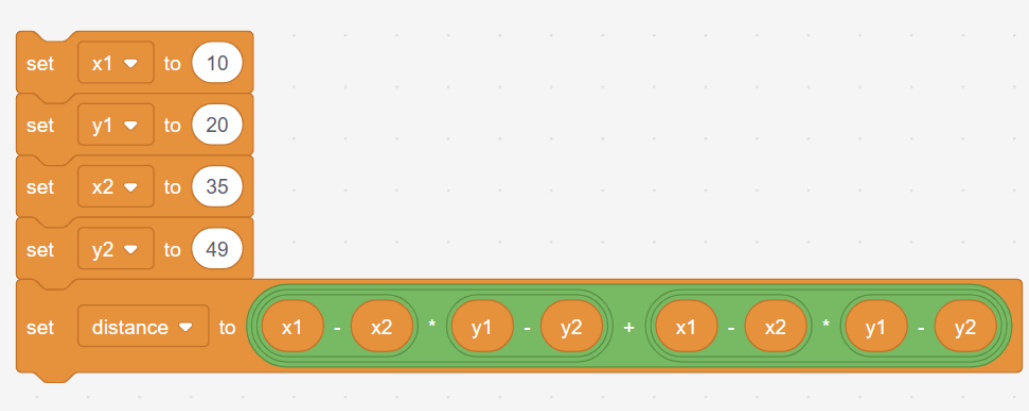
8) Can polynomial expressions be instructed to computer in logically finite steps ? ***1 point***

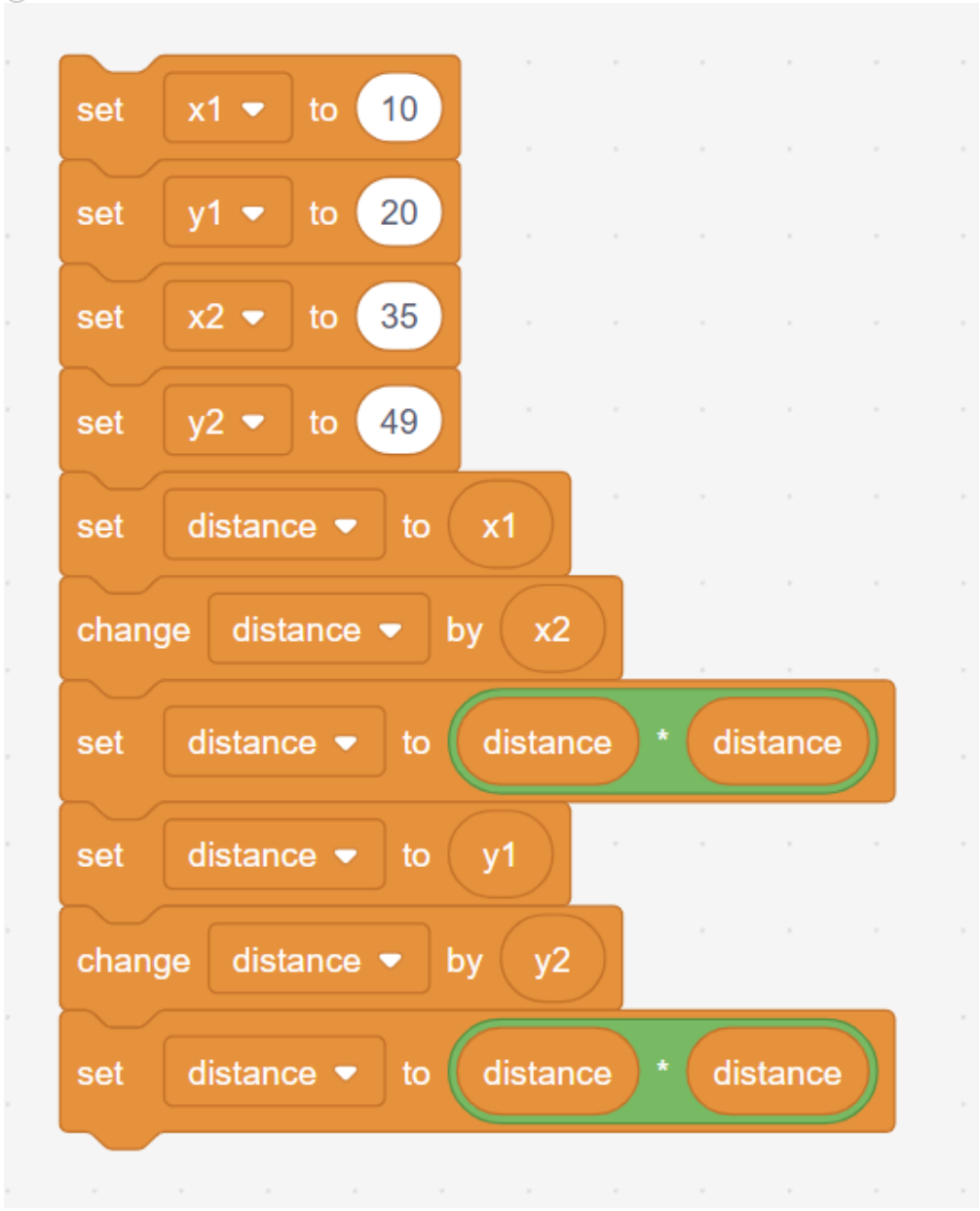
- Yes
- No

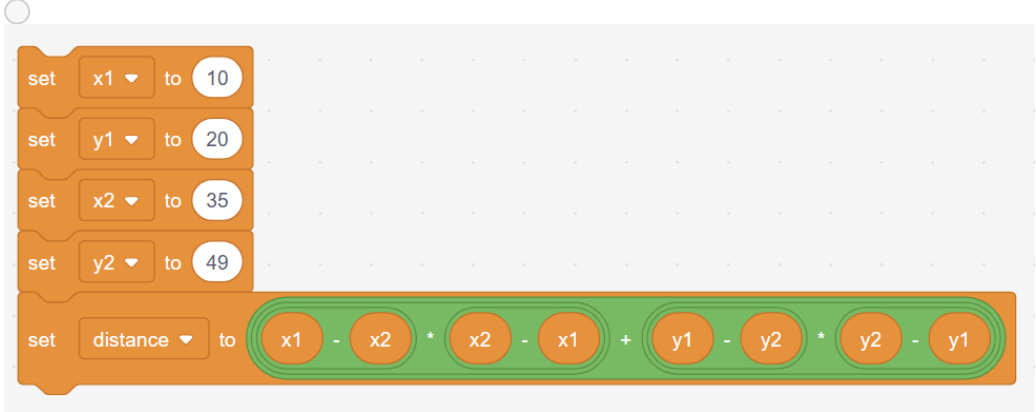
Yes, the answer is correct.
Score: 1

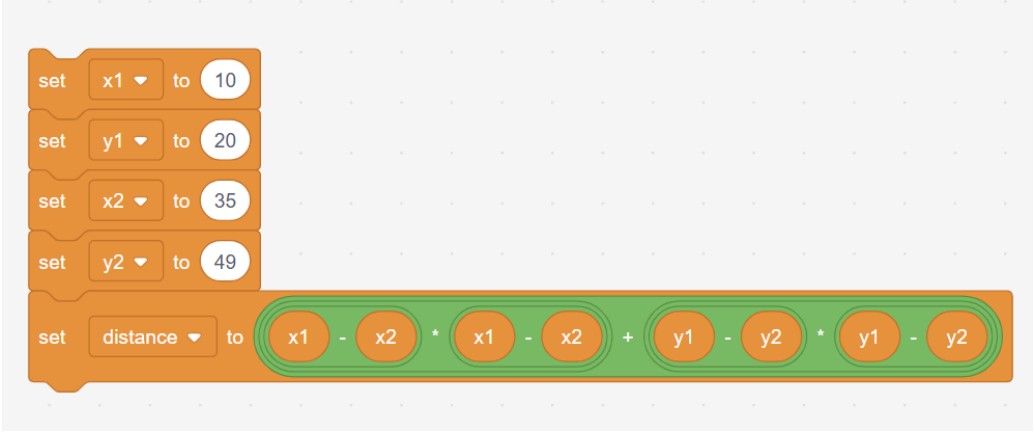
Accepted Answers:
Yes

9) In which of the following code blocks **calculation** of the squared distance between two points (10, 20) and (35, 49) is accomplished. ***1 point***



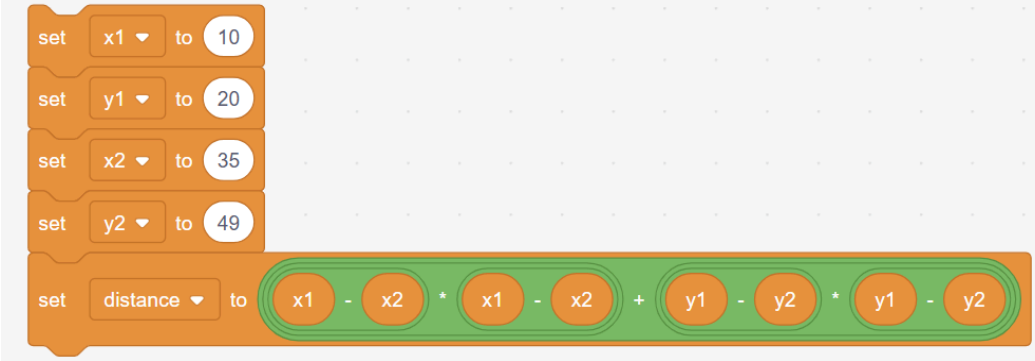

set x1 to 10
set y1 to 20
set x2 to 35
set y2 to 49
set distance to x1
change distance by x2
set distance to distance * distance
set distance to y1
change distance by y2
set distance to distance * distance


set x1 to 10
set y1 to 20
set x2 to 35
set y2 to 49
set distance to x1 - x2 * x2 - x1 + y1 - y2 * y2 - y1

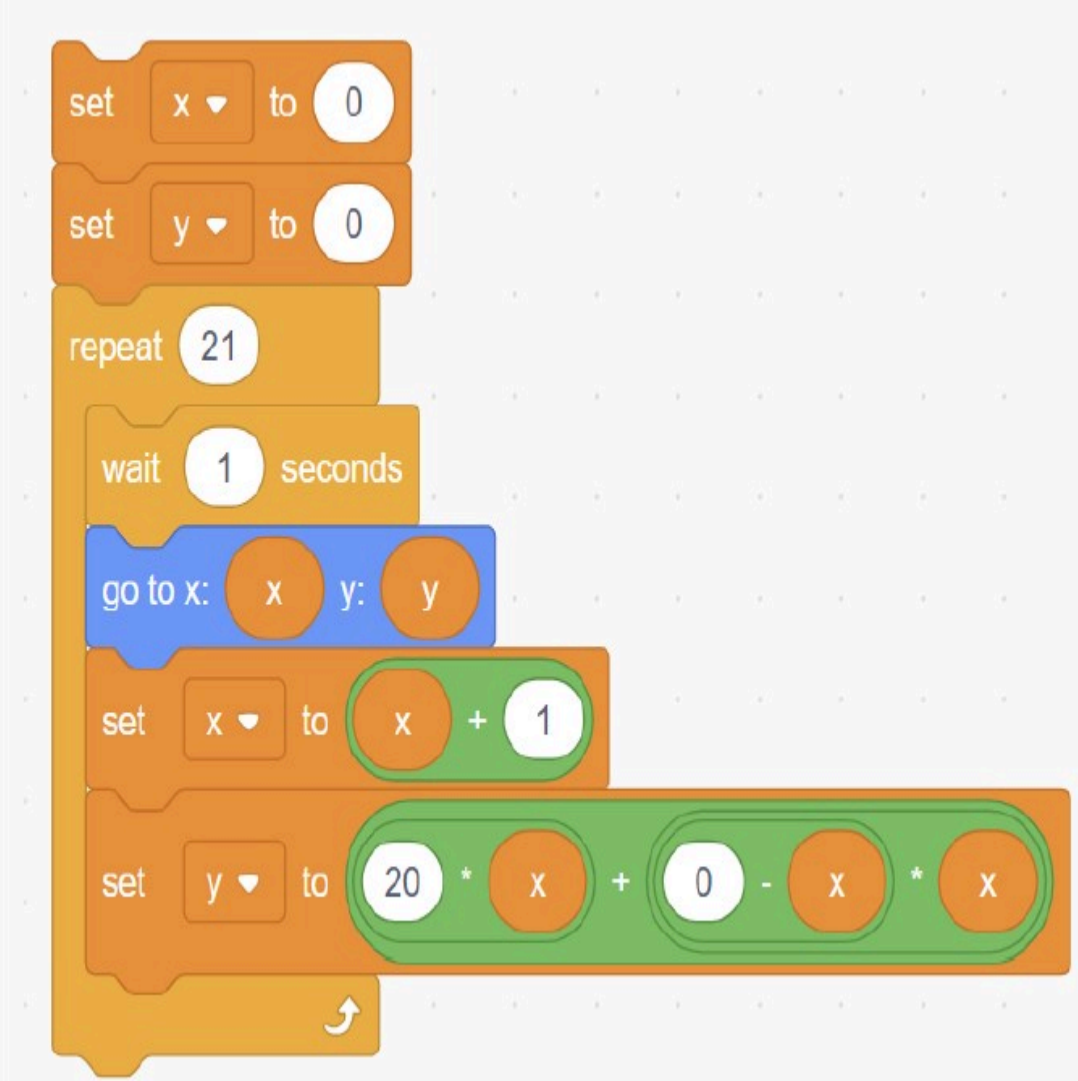


Yes, the answer is correct.
Score: 1

Accepted Answers:



10) What task does the block below accomplish ? ***1 point***



- Moves the ball in a parabolic path and stops 21 away steps from center(0, 0) in x direction.
- Moves the ball in a circular path and 21 times.
- Moves the ball in a triangular path and end at the center (0, 0).
- Moves the ball in a parabolic path and stops 20 away steps from center(0, 0) in x direction.

Yes, the answer is correct.
Score: 1

Accepted Answers:
Moves the ball in a parabolic path and stops 20 away steps from center(0, 0) in x direction.

X

Week 2: Assignment 2

The due date for submitting this assignment has passed.

Due on 2024-08-07, 23:59 IST.

Assignment submitted on 2024-08-06, 17:00 IST

1) **Statement :** If a variable is assigned multiple times, the latest value is not stored in the variable ***1 point***

- False, the variable stores all values it was assigned
- False, the variable stores the value from the latest assignment.
- True, the variable stores the value from the second-last assignment.
- True, the variable stores value from the initial assignment

Yes, the answer is correct.
Score: 1

Accepted Answers:
False, the variable stores the value from the latest assignment.

2) Which of the following code blocks print - ”Hello Ram Lakshman and Hanuman !” ? ***1 point***

```
name1 = "Ram"
name2 = "Lakshman"
name3 = "Hanuman"
print("Hello",name1,name2, "and",name3,"!")
```

```
name1 = "Ram"
name2 = "Lakshman"
name3 = "Hanuman"
print("Hello",name1,name1, "and",name3,"!")
```

- [x]
```
print("Hello Ram Lakshman and Hanuman !")
```

- [ ]
```
name1 = "Ram"
name2 = "Lakshman"
name3 = "Hanuman"
print("Hello Ram", name1, "and",name3,"!")
```

Partially Correct.
Score: 0.5

Accepted Answers:

```
name1 = "Ram"
name2 = "Lakshman"
name3 = "Hanuman"
print("Hello",name1,name2, "and",name3,"!")
```

```
print("Hello Ram Lakshman and Hanuman !")
```

3) What aren't the correct ways to inform python that input is an integer ? ***1 point***

- [x] in(input())
- [x] float(input())
- [ ] int(input())
- [x] a = input()
  a = int(a)

No, the answer is incorrect.
Score: 0

Accepted Answers:
in(input())
float(input())

4) The following program outputs 722 - ***1 point***

```
a = 7
result = 1
for i in range(a):
    if(i > 0):
        result = result * i
print(result+2)
```

For what value of **a** does the code output 8 ?

- 2
- 1
- 4
- 6

Yes, the answer is correct.
Score: 1
Accepted Answers:
4

5) What does previous question calculate ? ***1 point***

- Calculates the factorial of **a**.
- Calculates the factorial of **a** and adds 2.
- Calculates the a multiples of **a** starting from **1** and adds **2.**
- Calculates the factorial of **a-1** and adds **2**.

Yes, the answer is correct.
Score: 1
Accepted Answers:
*Calculates the factorial of **a-1** and adds **2**.*

6) Which loop is used to perform a set of repetitive tasks based on condition in Python? ***1 point***

- **while** loop
- **for** loop
- **do-while** loop
- **while-range** loop

Yes, the answer is correct.
Score: 1
Accepted Answers:
***while** loop*

7) What happens when the condition inside the **if** and **while** evaluate to false ? ***1 point***

- Python interpreter ignores the **if/while** blocks, and halts the program.
- Python interpreter ignores the **if/while** blocks, and proceeds the program from the lines after the **if/while** block.
- Python interpreter executes the **if/while** blocks, and rest of the program.
- Python interpreter executes the **if/while,** and the programs runs in an infinite loop.

Yes, the answer is correct.
Score: 1
Accepted Answers:
*Python interpreter ignores the **if/while** blocks, and proceeds the program from the lines after the **if/while** block.*

8) The following program might/might not have an infinite loop. Does the program have infinite loop ? ***1 point***

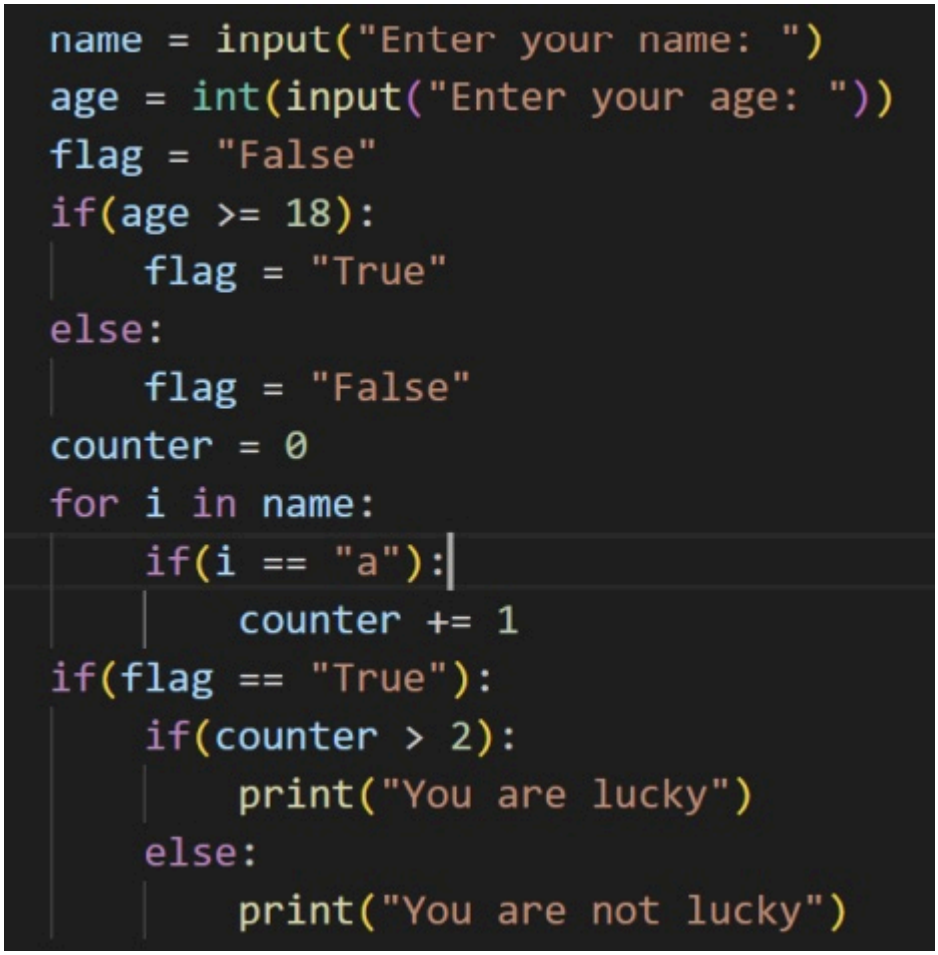
```
1   a = int(input())
2   while(a == 0):
3       if(a<0):
4           a=-1
5       if(a>0):
6           a=1
7   if(a>1):
8       a=2
9   if(a<1):
10      a=-2
11  print(a)
```

- No, the program doesn't have infinite loop.
- Yes, it can be prevented by updating the value of **a** before the **if** block at line 3
- Yes, it can be prevented by removing both the **if** blocks inside the while loop.
- Yes, but it cannot be prevented

Yes, the answer is correct.
Score: 1

Accepted Answers:
*Yes, it can be prevented by updating the value of **a** before the **if** block at line 3*

9) For which of the following values of **name** and **age** variables does the following code print "You are lucky"? ***1 point***



```
name = input("Enter your name: ")
age = int(input("Enter your age: "))
flag = "False"
if(age >= 18):
    flag = "True"
else:
    flag = "False"
counter = 0
for i in name:
    if(i == "a"):
        counter += 1
if(flag == "True"):
    if(counter > 2):
        print("You are lucky")
    else:
        print("You are not lucky")
```

- aryan, 20
- arjun, 19
- aakash, 17
- aatreya, 18

Yes, the answer is correct.
Score: 1

Accepted Answers:
aatreya, 18

10) For which of the options among the previous question, the program doesn't print anything. ***1 point***

- aryan, 20
- arjun, 19
- aakash, 17
- aatreya, 18

Yes, the answer is correct.
Score: 1

Accepted Answers:
aakash, 17

X

Week 3: Assignment 3

The due date for submitting this assignment has passed.

Due on 2024-08-14, 23:59 IST.

Assignment submitted on 2024-08-14, 18:43 IST

1) Which of the following is/are **true** statement(s)? ***1 point***

- [x] Lists are used to store multiple values.
- [ ] One can access element in list by using non-numeric indices.
- [x] Iterating over lists is possible in Python.
- [ ] We need to specify required size of list while creating a new list variable.

Yes, the answer is correct.
Score: 1

Accepted Answers:
Lists are used to store multiple values.
Iterating over lists is possible in Python.

2) In the below code -

```
n= ?
a = []
for i in range(n):
    l1 = []
    p = 0
    for j in range(i):
        l1.append(j)
    for k in l1:
        p+=1
    a.append(p)
k=0
for l in a:
    k+=l
print(k)
```

For what value of **n** does the program print **21** ?

7

Yes, the answer is correct.
Score: 1

Accepted Answers:
(Type: Numeric) 7

1 point

3) From the previous question, for what values of **n** is the number **7** appended to list **a.** ***1 point***

- [ ] 7
- [ ] 6
- [x] 8
- [x] 9

Yes, the answer is correct.
Score: 1

Accepted Answers:
8
9

4) What does the following code perform ? ***1 point***

```
def mystery(container):
    result = []
    for i in range(len(container)):
        if i % 2 == 0:
            result.append(container[i] * 2)
        else:
            result.append(container[i] + 3)
    return result
```

- It converts any input list into a new list which is filled with some alternative even and odd numbers.
- It converts any input list into a new list such that at even indices, the value is a multiple of an even number and at odd indices, the value is either odd or even number.
- It converts any input list into a new list such that at even indices, the value is multiple of 2 and at odd indices, the value is multiple of 3.
- It converts any input list into a new list, which follows no pattern.

Yes, the answer is correct.
Score: 1

Accepted Answers:
It converts any input list into a new list such that at even indices, the value is a multiple of an even number and at odd indices, the value is either odd or even number.

5) From the previous question, if the option - ***1 point***

It converts any input list into a new list which is filled with some alternative even and odd numbers.

is incorrect, Can you make changes to code such that this option is true ?

- No, it is not possible to make such changes.
- No, the option is already correct.
- Yes, we can make changes.

Yes, the answer is correct.
Score: 1

Accepted Answers:
Yes, we can make changes.

6) If **file.txt** exists, Does the code successfully run ? ***1 point***

```
with open("file.txt", "w") as f:
    data = f.read()
    print(data)
```

- Yes
- No

Yes, the answer is correct.

Score: 1
Accepted Answers:
No

7) Which of the following are examples of Social Computing ? ***1 point***

- [x] StackOverflow
- [x] Wikipedia
- [x] Quora
- [ ] None

Yes, the answer is correct.
Score: 1
Accepted Answers:
StackOverflow
Wikipedia
Quora

8) What does the following code print for **n = 3**? ***1 point***

```
n = ?
k = 0
a = []
b = 0
while (n != 0):
    k = k + (n % 10)
    a.append(n % 10)
    n = n//10
a.sort()
for i in a:
    b = b + i
if(b == k):
    print("WE KNOW THE WISDOM OF SERIES")
else:
    print("WE ARE YET TO KNOW MANY THINGS")
```

- (•) WE KNOW THE WISDOM OF SERIES
- ( ) WE ARE YET TO KNOW MANY THINGS

Yes, the answer is correct.
Score: 1
Accepted Answers:
WE KNOW THE WISDOM OF SERIES

9) From the previous question, is the variable **n** or **a.sort()** responsible for printing of either of the two possible sentences ? ***1 point***

- [x] No, it is not dependent on variable n, the code will never print ”WE ARE YET TO KNOW MANY THINGS”.
- [ ] Yes on a.sort() only, but the code will never print ”WE ARE YET TO KNOW MANY THINGS”.
- [ ] Yes on both, the code may print both sentences.

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☑ No, it is not dependent on a.sort(), the code will never print "WE ARE YET TO KNOW MANY THINGS".

Yes, the answer is correct.
Score: 1

Accepted Answers:
No, it is not dependent on variable n, the code will never print "WE ARE YET TO KNOW MANY THINGS".
No, it is not dependent on a.sort(), the code will never print "WE ARE YET TO KNOW MANY THINGS".

10) What does the code in question 8, calculate ?
Can you say what the values of k and b are if n = 10294343763482 x 10^{2309}.
If values of k and b are different, enter 0, else enter value of k

56

Yes, the answer is correct.
Score: 1

Accepted Answers:
(Type: Numeric) 56

1 point

X

Week 4: Assignment 4

The due date for submitting this assignment has passed.

Due on 2024-08-21, 23:59 IST.

As per our records you have not submitted this assignment.

1) Which of the following options provides the general formula for the magic constant of a magic square of size n, where all elements are distinct numbers from 1 to n^2? ***1 point***

- $\frac{n(n^2+1)}{2}$
- $\frac{n^3}{2}$
- $\frac{n^3+2}{2}$
- $\frac{n^4+n^2}{2n}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\frac{n(n^2+1)}{2}$
$\frac{n^4+n^2}{2n}$

2) What would the magic constant be for a magic square of size 6, given that all elements in the square are distinct numbers from 1 to 36? ***1 point***

- 72
- 111
- 109

110

No, the answer is incorrect.
Score: 0

Accepted Answers:
111

3) Does transposing the magic square give us a new magic square ? ***1 point***

Yes

No

No, the answer is incorrect.
Score: 0

Accepted Answers:
Yes

4) Which of the following are valid magic squares ? ***1 point***

$$\begin{bmatrix} 10 & 3 & 13 & 8 \\ 5 & 16 & 2 & 11 \\ 4 & 9 & 7 & 14 \\ 15 & 6 & 12 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 20-e & 6-e & 26-e & 16-e \\ 10-e & 32-e & 4-e & 22-e \\ 8-e & 18-e & 14-e & 28-e \\ 30-e & 12-e & 24-e & 2-e \end{bmatrix}$$

$$\begin{bmatrix} 1 & 14 & 4 & 15 \\ 8 & 11 & 5 & 10 \\ 13 & 2 & 16 & 3 \\ 12 & 7 & 9 & 6 \end{bmatrix}$$

$$\begin{bmatrix} \pi & 14\pi & 4\pi & 15\pi \\ 8\pi & 11\pi & 5\pi & 10\pi \\ 13\pi & 2\pi & 16\pi & 3\pi \\ 12\pi & 7\pi & 9\pi & 6\pi \end{bmatrix}$$

No, the answer is incorrect.
Score: 0

Accepted Answers:

$$\begin{bmatrix} 10 & 3 & 13 & 8 \\ 5 & 16 & 2 & 11 \\ 4 & 9 & 7 & 14 \\ 15 & 6 & 12 & 1 \end{bmatrix}$$

Birthday Paradox - Find your twin 01 (unit? unit=78&lesson=91)
Birthday Paradox - Find your twin 02 (unit? unit=78&lesson=92)
Birthday Paradox - Find your twin 03 (unit? unit=78&lesson=93)
Birthday Paradox - Find your twin 04 (unit? unit=78&lesson=94)
Birthday Paradox - Find your twin 05 (unit? unit=78&lesson=95)
What's your favourite movie? (unit? unit=78&lesson=96)
Guess the Movie Name 01 (unit? unit=78&lesson=97)
Guess the Movie Name 02 (unit? unit=78&lesson=98)
Guess the Movie Name 03 (unit? unit=78&lesson=99)

$$\begin{bmatrix} 20-e & 6-e & 26-e & 16-e \\ 10-e & 32-e & 4-e & 22-e \\ 8-e & 18-e & 14-e & 28-e \\ 30-e & 12-e & 24-e & 2-e \end{bmatrix}$$

$$\begin{bmatrix} 1 & 14 & 4 & 15 \\ 8 & 11 & 5 & 10 \\ 13 & 2 & 16 & 3 \\ 12 & 7 & 9 & 6 \end{bmatrix}$$

$$\begin{bmatrix} \pi & 14\pi & 4\pi & 15\pi \\ 8\pi & 11\pi & 5\pi & 10\pi \\ 13\pi & 2\pi & 16\pi & 3\pi \\ 12\pi & 7\pi & 9\pi & 6\pi \end{bmatrix}$$

5) What is the minimum number of people required to ensure that at least two of them share the same 30-minute birth interval? The intervals start from 12:00 AM and each interval lasts for half an hour.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 49

1 point

6) Calculate the magic constant for 4x4 square, where all elements are distinct numbers from 1 to 16, is it same as the magic constant for Ramanujan's magic square ?

If yes, enter 0, else enter the absolute difference between the two.
Hint: Search the about Ramanujan's magic square.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 105

1 point

7) What task does function1() perform ? ***1 point***

```
def function1(number):
    list1 = []
    for i in range(1, number):
        if number % i == 0:
            list1.append(i)
    return list1


def function2(n1, n2):
    flag = False
    list2 = []
    for i in function1(n1):
        for j in function1(n2):
            if i == j:
                flag = True
                list2.append(i)
    if len(list2) > 0:
        print("Completed")
```

- Calculate factorial of number n.
- Calculate factors of number n.
- Calculate prime factors of number n.
- Calculate factors of number n excluding n.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Calculate factors of number n excluding n.

8) For what **n1,n2** flag will the variable **flag** inside **function2()** be not equal to true ? ***1 point***

- 2,3
- 0,0
- 1,1
- 1,0

No, the answer is incorrect.
Score: 0

Accepted Answers:
0,0
1,1
1,0

9) If all possible pairs of prime numbers between 0 and 20, are given to n1 and n2, for how many pairs would function2 print ”Completed” ? ***1 point***

- It will not print ”Completed” for any pair.
- It will print ”Completed” only for pairs (2,3)(3,5),(2,5), and for the remaining it would not print ”Completed”.
- It will print ”Completed” only for pair (2,3), and for the remaining other pairs of primes it would not print ”Completed”.
- It will print ”Completed” for all pairs of primes between 0 and 20.

No, the answer is incorrect.
Score: 0

Accepted Answers:
It will print ”Completed” for all pairs of primes between 0 and 20.

10) If numbers of pairs of primes which result in function2 to print ”Completed” are greater than 0, Can we edit the code in **function2()** so that ”Completed” is never printed for any pair of primes ? ***1 point***

- Yes, we can change the logic for setting **flag** variable to True.
- Yes, we can change/increase the threshold for length of **list2** in the last **if** block.
- No, it is logically not possible.
- Yes, we can change the initial value of flag to True, instead of False.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*Yes, we can change/increase the threshold for length of **list2** in the last **if** block.*

X

Week 5: Assignment 5

The due date for submitting this assignment has passed.

Due on 2024-08-28, 23:59 IST.

Assignment submitted on 2024-08-28, 09:40 IST

1) Which of the following is the correct way to add data with key as $\mathbf{CS101}$ and value as $\mathbf{"Web\ Programming"}$ to a dictionary named $\mathbf{courseData}$? *1 point*

- $\mathbf{courseData["CS101"].append("Web\ Programming")}$
- $\mathbf{courseData["CS101"]["Web\ Programming"]}$
- $\mathbf{courseData["CS101"] = "Web\ Programming";}$
- ◉ $\mathbf{courseData["CS101"] = "Web\ Programming"}$

Yes, the answer is correct.
Score: 1

Accepted Answers:
$\mathbf{courseData["CS101"] = "Web\ Programming"}$

2) What is the probability of Monty opening the door with goat, given the hypothesis that you initially chose the door which has car ? *1 point*

- 0.5
- 0.66
- 0.33
- ◉ 1

Yes, the answer is correct.
Score: 1

Accepted Answers:
1

3) What should be replaced with **?** in line 10, so that there is high chance that **final_choice** is equal to 2 ? ***1 point***

```
1  import random
2  initial_choice = random.randint(0, 2)
3  doors = ['goat', 'goat', 'car']
4
5  for i in range(3):
6      if i != initial_choice and doors[i] != 'car':
7          monty_opens = i
8          break
9
10 if ? :
11     for i in range(3):
12         if i != initial_choice and i != monty_opens:
13             final_choice = i
14             break
15 else:
16     final_choice = initial_choice
```

- [x] True
- [x] (2**90) % 2 == 0
- [x] 3*((3**89) + 3) % 3 == 0
- [x] (2**90) % len(doors) == 1

Yes, the answer is correct.
Score: 1
Accepted Answers:
True
*(2**90) % 2 == 0*
3((3**89) + 3) % 3 == 0*
*(2**90) % len(doors) == 1*

4) Given that you have a sorted list of 1024 elemets, what is the maximum number of comparisons required to find the target element using binary search ? Also what is the number of comparisons to search such an element using linear search ? ***1 point***

- ( ) Binary: 10, Linear: 512
- (•) Binary: 11, Linear: 1024
- ( ) Binary: 10, Linear: 1024
- ( ) Binary: 11, Linear: 512

No, the answer is incorrect.
Score: 0
Accepted Answers:
Binary: 10, Linear: 1024

5) What type of data is contained in a file with a .wav or .wave extension? ***1 point***

- ( ) Log data
- (•) Audio data

- Video data
- Image data

Yes, the answer is correct.
Score: 1

Accepted Answers:
Audio data

6) What does this program print in the end ? ***1 point***

```
import random
n=10
counter = 0
for i in range(n):
    choices = ["rock", "paper", "scissors"]
    choice1 = random.choice(choices)
    choice2 = random.choice(choices)
    if choice1 == choice2:
        counter += 1
print(counter/n)
```

- Fraction of throws where both players showed different symbol(rock/paper/scissors)
- Fraction of throws where both players showed rock.
- Fraction of throws where both players showed same symbol(rock/paper/scissors)
- Fraction of throws where both players showed paper.

Yes, the answer is correct.
Score: 1

Accepted Answers:
Fraction of throws where both players showed same symbol(rock/paper/scissors)

7) In binary search, what happens if the target value is greater than the middle element of the array? ***1 point***

- The search continues in the left half of the array.
- The search continues in the right half of the array.
- The search ends.
- The array is sorted again.

Yes, the answer is correct.
Score: 1

Accepted Answers:
The search continues in the right half of the array.

8) Which of the following is a requirement for binary search to work correctly? ***1 point***

- The list must be sorted.
- The list must contain only positive numbers.

- The list must be of an even length.
- The list must contain unique elements.

Yes, the answer is correct.
Score: 1

Accepted Answers:
The list must be sorted.

9) Given an array [5, 3, 8, 4, 2], what will be the array after the third pass of Bubble Sort? ***1 point***

- [3, 2, 4, 8, 5]
- [3, 2, 4, 5, 8]
- [2, 3, 4, 5, 8]
- [3, 5, 2, 4, 8]

Yes, the answer is correct.
Score: 1

Accepted Answers:
[3, 2, 4, 5, 8]

10) How many swaps are performed in iteration 3 for bubble sorting list [4,3,2,1]? Enter 0 if the list is sorted in less than 3 iterations.

1

Yes, the answer is correct.
Score: 1

Accepted Answers:
(Type: Numeric) 1

1 point

X

Week 6: Assignment 6

The due date for submitting this assignment has passed.

Due on 2024-09-04, 23:59 IST.

Assignment submitted on 2024-09-02, 15:27 IST

1) If n is a positive integer, what is the output of the function given input n, ***1 point***

```
def mystery(n):
    if n <= 0:
        return 0
    else:
        return 1 + mystery(n - 1)
```

- Sum of numbers from 1 to n
- Sum of numbers from 1 to n-1
- n-1
- n

Yes, the answer is correct.
Score: 1

Accepted Answers:
n

2) Which of the following are true about recursion? ***1 point***

- Recursion is a process in which a function calls itself as a subroutine.
- Recursion is a better alternative for performing repetitive tasks compared to iteration.

- [x] Recursion requires more resources compared to iteration.

Yes, the answer is correct.
Score: 1

Accepted Answers:
Recursion is a process in which a function calls itself as a subroutine.
Recursion requires more resources compared to iteration.

3) What is the output of following code ? ***1 point***

```
def func(x):
    return x * 2

def func(x, y=3):
    return x + y

print(func(5))
```

- 10
- [x] 8
- 5
- Error

Yes, the answer is correct.
Score: 1

Accepted Answers:
8

4) The letter 'e' is the most frequently occurring letter in the English language. ***1 point***
Suppose we apply a Substitution Cipher where 'e' is mapped to 'a', and all other letters are uniquely mapped to different letters. If we encrypt a very long English storybook using this cipher, will the frequency of 'a' be the highest in the encrypted text?

Hint: Search the internet for more info, if needed

- [x] Yes, it would be same as ’e’ in the original text
- Yes, it would be higher than ’e’ in the original text.
- No, it would be lower than ’e’ in the original text.
- No, we cannot predict

Yes, the answer is correct.
Score: 1

Accepted Answers:
Yes, it would be same as ’e’ in the original text

5) Could we check frequency of letters in a long ciphertext and map them to frequency of letters in English to decrypt the message? ***1 point***

Hint: Search the internet for more info, if needed.

- (•) Yes, it is possible.
- ( ) No, it is not possible.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Yes, it is possible.

6) What are drawbacks of using frequency analysis to decrypt a message that has been encrypted using Substitution Cipher? ***1 point***

- [x] It will not work if the cipher text is too small.
- [ ] It works flawlessly.
- [x] It will not work if the encrypted text was previously encrypted using a different cipher, which could have removed patterns in common English.
- [ ] The frequency analysis method doesn't work at all for Substitution Cipher

Yes, the answer is correct.
Score: 1
Accepted Answers:
It will not work if the cipher text is too small.
It will not work if the encrypted text was previously encrypted using a different cipher, which could have removed patterns in common English.

7) If variable **dict_name** is a non-empty dictionary, what does dict_name.keys() return? ***1 point***

- ( ) Returns nothing, but prints all the keys in the dictionary.
- (•) Returns a list of all the keys in the dictionary.
- ( ) Returns a list of all the values in the dictionary.
- ( ) Returns a list of all the items in the dictionary

Yes, the answer is correct.
Score: 1
Accepted Answers:
Returns a list of all the keys in the dictionary.

8) Is Ceaser Cipher a type of Substitution Cipher? ***1 point***

- (•) Yes
- ( ) No

Yes, the answer is correct.
Score: 1
Accepted Answers:
Yes

9) What is the consequence of not having a base case in a recursive function? ***1 point***

- (•) The function will run infinitely.
- ( ) The function will run only once.
- ( ) The function will not run at all.

- The function will run only for a fixed number of times.

Yes, the answer is correct.
Score: 1

Accepted Answers:
The function will run infinitely.

10) What are the number of possible final lines when someone wins, in a game of TicTac-Toe? ***1 point***

- 3
- 8
- 9
- 4

Yes, the answer is correct.
Score: 1

Accepted Answers:
8

X

Week 7: Assignment 7

The due date for submitting this assignment has passed.

Due on 2024-09-11, 23:59 IST.

Assignment submitted on 2024-09-09, 23:43 IST

1) Which of the following methods is used to read the content of a CSV file in Python using the csv module? ***1 point***

- (•) csv.reader()
- ( ) csv.write()
- ( ) csv.load()
- ( ) csv.readfile()

Yes, the answer is correct.
Score: 1
Accepted Answers:
csv.reader()

2) Which command is used to install a Python package using pip? ***1 point***

- (•) pip install package-name
- ( ) install pip package-name
- ( ) python install package-name
- ( ) pip package-name install

Yes, the answer is correct.
Score: 1
Accepted Answers:
pip install package-name

3) What is the primary purpose of the gmplot library in Python? ***1 point***

- ( ) To create 3D plots

- To plot data on Google Maps
- To generate matplotlib graphs
- To create dashboards

Yes, the answer is correct.
Score: 1
Accepted Answers:
To plot data on Google Maps

4) In a game of Snakes and Ladders, a player is currently on square 96. There is a snake on square 99 that sends the player back to square 78. If the player wishes to reach square 100 in one dice throw, what number must they roll on the dice?

4

Yes, the answer is correct.
Score: 1
Accepted Answers:
(Type: Numeric) 4

1 point

5) In the same scenario, where the player is on square 96 and needs to roll a 4 to reach square 100, what is the probability of rolling this number on a fair six-sided die? ***1 point***

- 1/2
- 1/3
- 1/4
- 1/6

Yes, the answer is correct.
Score: 1
Accepted Answers:
1/6

6) Which of the following commands will draw a square using Python's turtle module? ***1 point***
Turtle is imported in the following way-
import turtle as t
turtle = t.Turtle()

- for i in range(4):
  turtle.forward(100)
  turtle.left(90)
- for i in range(4):
  turtle.forward(100)
  turtle.right(90)
- for i in range(4):
  turtle.backward(100)
  turtle.left(90)
- for i in range(4):
  turtle.backward(100)
  turtle.right(90)

Yes, the answer is correct.
Score: 1
Accepted Answers:

```
for i in range(4):
    turtle.forward(100)
    turtle.left(90)
for i in range(4):
    turtle.forward(100)
    turtle.right(90)
for i in range(4):
    turtle.backward(100)
    turtle.left(90)
for i in range(4):
    turtle.backward(100)
    turtle.right(90)
```

7) Does the turtle module in Python allow you to draw complex shapes on the screen? ***1 point***

- (●) Yes
- ( ) No

Yes, the answer is correct.
Score: 1
Accepted Answers:
Yes

8) What is the purpose of the turtle.penup() and turtle.pendown() commands in Python's turtle module? ***1 point***

- (●) To stop the turtle from drawing and then resume drawing at a new position
- ( ) To change the color of the turtle's pen
- ( ) To speed up or slow down the drawing speed of the turtle

Yes, the answer is correct.
Score: 1
Accepted Answers:
To stop the turtle from drawing and then resume drawing at a new position

9) What is the default drawing state of the turtle when a new turtle object is created in Python's turtle module? ***1 point***

- ( ) The turtle's pen is up, so it does not draw while moving.
- (●) The turtle's pen is down, so it draws while moving.
- ( ) The turtle is hidden, so it does not appear on the screen.
- ( ) The turtle starts with a circular shape.

Yes, the answer is correct.
Score: 1
Accepted Answers:
The turtle's pen is down, so it draws while moving.

10) Which of the following commands is used to open an image file using Python's PIL (Pillow) library? ***1 point***

- ( ) img = PIL.Image.open('image.jpg')

- (•) img = Image.open('image.jpg')
- ( ) img = open_image('image.jpg')
- ( ) img = PIL.open_image('image.jpg')

Yes, the answer is correct.
Score: 1

Accepted Answers:
img = Image.open('image.jpg')

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X

Week 8: Assignment 8

The due date for submitting this assignment has passed.

Due on 2024-09-18, 23:59 IST.

Assignment submitted on 2024-09-14, 12:26 IST

1) Which of the following is a valid way to create a tuple in Python? ***1 point***

- [ ] t = [1, 2, 3]
- [x] t = (1, 2, 3)
- [ ] t = {1, 2, 3}
- [x] t = 1, 2, 3

Yes, the answer is correct.
Score: 1

Accepted Answers:
t = (1, 2, 3)
t = 1, 2, 3

2) Which of the following operations is valid on a tuple? ***1 point***

- ( ) t[1] = 4
- ( ) t.append(4)
- (•) t = t + (4,)
- ( ) del t[1]

Yes, the answer is correct.
Score: 1

Accepted Answers:
t = t + (4,)

3) What will the following code output? ***1 point***

```
t = [1, 2, 3]
print(type((t,t)))
```

- < class 'list' >
- < class 'set' >
- < class 'tuple' >
- Error

Yes, the answer is correct.
Score: 1

Accepted Answers:
< class 'tuple' >

4) What is the primary purpose of the **matplotlib.pyplot** module in Python? ***1 point***

- To perform matrix operations.
- To handle file I/O operations.
- To generate and customize visualizations like plots and graphs.
- To manipulate and process images.

Yes, the answer is correct.
Score: 1

Accepted Answers:
To generate and customize visualizations like plots and graphs.

5) Which of the following statements is true about anagrams? ***1 point***

- Two strings of different lengths can be anagrams.
- Two strings are anagrams if they contain the same characters in the same order.
- Two strings are anagrams if they contain the same characters in different orders.

Yes, the answer is correct.
Score: 1

Accepted Answers:
Two strings are anagrams if they contain the same characters in different orders.

6) Every character, whether an alphabet, digit, or special character, has an ASCII value. Which of the following methods is used to find the ASCII value ? ***1 point***

- ASCII('a')
- ord('a')
- int('a')
- ASC_val('a')

Yes, the answer is correct.
Score: 1

Accepted Answers:
ord('a')

7) Which of the following libraries is commonly used to determine the intensity of emotions in sentiment analysis? ***1 point***

- VADER

- Numpy
- Pandas
- SciPy

Yes, the answer is correct.
Score: 1
Accepted Answers:
VADER

8) Which of the following Python code snippets correctly checks if two strings are anagrams? ***1 point***

- def are_anagrams(str1, str2):
  return sorted(str1) == sorted(str2)
- def are_anagrams(str1, str2):
  return set(str1) == set(str2)
- def are_anagrams(str1, str2):
  return str1 == str2[::-1]
- def are_anagrams(str1, str2):
  return len(str1) == len(str2)

Yes, the answer is correct.
Score: 1
Accepted Answers:
def are_anagrams(str1, str2):
return sorted(str1) == sorted(str2)

9) Why is gambling generally a bad decision ? ***1 point***

- Because you will lose more money than you win over time.
- Because the probability of winning is always 0.
- Because you will always win.
- Because the amount of money you can win is always greater than the amount you lost over time

Yes, the answer is correct.
Score: 1
Accepted Answers:
Because you will lose more money than you win over time.

10) True or False: A significant amount of information can be extracted from an image by applying the appropriate image enhancement techniques ***1 point***

- True
- False

Yes, the answer is correct.
Score: 1
Accepted Answers:
True

Week 8 ()

- Tuples- Python Data Structure (unit?unit=165&lesson=166)
- Lottery Simulation - Profit or Loss (unit?unit=165&lesson=167)
- Lottery Simulation - Profit or Loss - Part 01 (unit?unit=165&lesson=168)
- Lottery Simulation - Profit or Loss - Part 02 (unit?unit=165&lesson=169)
- Lottery Simulation - Profit or Loss - Part 03 (unit?unit=165&lesson=170)
- Lottery Simulation - Profit or Loss - Part 04 (unit?unit=165&lesson=171)
- Lottery Simulation - Profit or Loss - Part 05 (unit?unit=165&lesson=172)
- Lottery Simulation - Profit or Loss - Part 06 (unit?unit=165&lesson=173)
- Image Processing -

- Enhance your images (unit?unit=165&lesson=174)
- Image Processing - Enhance your images - Part 01 (unit?unit=165&lesson=175)
- Image Processing - Enhance your images - Part 02 (unit?unit=165&lesson=176)
- Image Processing - Enhance your images - Part 03 (unit?unit=165&lesson=177)
- Anagrams (unit?unit=165&lesson=178)
- Anagrams - Part 01 (unit?unit=165&lesson=179)
- Anagrams - Part 02 (unit?unit=165&lesson=180)
- Anagrams - Part 03 (unit?unit=165&lesson=181)
- Facebook Sentiment Analysis (unit?unit=165&lesson=182)
- Facebook Sentiment Analysis - Part 01 (unit?

X

Week 9: Assignment 9

The due date for submitting this assignment has passed.

Due on 2024-09-25, 23:59 IST.

Assignment submitted on 2024-09-20, 18:15 IST

1) 'nltk.download()' function downloads necessary packages for the Natural Language Toolkit (NLTK) library? ***1 point***

- (selected) True
- False

Yes, the answer is correct.
Score: 1

Accepted Answers:
True

2) Which of the following best defines a complete graph? ***1 point***

- (selected) A graph where every pair of distinct vertices is connected by a unique edge
- A graph with no edges
- A graph with a single vertex
- A graph with at least one loop

Yes, the answer is correct.
Score: 1

Accepted Answers:
A graph where every pair of distinct vertices is connected by a unique edge

3) How many edges are there in a complete graph with 4 nodes? ***1 point***

- (selected) 6
- 8
- 12

- 16

Yes, the answer is correct.
Score: 1

Accepted Answers:
6

4) Which Python library is most commonly used for working with graphs related to networks? ***1 point***

- Random
- Pandas
- NumPy
- NetworkX

Yes, the answer is correct.
Score: 1

Accepted Answers:
NetworkX

5) Gephi is: ***1 point***

- A Python library for linear algebra
- A software for visualizing and analyzing large networks
- A tool for data cleaning and preprocessing
- A Python library for building statistical models

Yes, the answer is correct.
Score: 1

Accepted Answers:
A software for visualizing and analyzing large networks

6) How many attributes typically define a color in digital representations? ***1 point***

- 1
- 2
- 3
- 9

Yes, the answer is correct.
Score: 1

Accepted Answers:
3

7) What is the degree of a node in a graph? ***1 point***

- The number of edges connected to the node
- The shortest path between two nodes
- The number of nodes in the graph
- The distance from the node to the center of the graph

Yes, the answer is correct.
Score: 1

Accepted Answers:
The number of edges connected to the node

8) What is the primary goal of stylometry? ***1 point***

- (●) To analyze the style and structure of literary works for authorship attribution
- ( ) To create stylized graphics for digital art
- ( ) To study phonology of languages
- ( ) To enhance the readability of texts by adjusting font styles

Yes, the answer is correct.
Score: 1

Accepted Answers:
To analyze the style and structure of literary works for authorship attribution

9) Given the following Python code, what is printed in the end? ***1 point***

```
x = ["apple", "banana", "cherry", "date"]
k = 0
for item in x:
    k += len(item)

print(k)
```

- ( ) 4
- (●) 21
- ( ) 24
- ( ) 26

Yes, the answer is correct.
Score: 1

Accepted Answers:
21

10) How can you estimate the area of a sub-region within a larger region by randomly throwing points in the larger region? ***1 point***

- ( ) By counting the total number of points and calculating the sum of their distances from the center
- (●) By calculating the proportion of points that land in the sub-region compared to the total number of points in the larger region
- ( ) By calculating the distance between each point and the boundary of the region
- ( ) By averaging the coordinates of all the points that land in the larger region

Yes, the answer is correct.
Score: 1

Accepted Answers:
By calculating the proportion of points that land in the sub-region compared to the total number of points in the larger region

- Six Degrees of Separation : Meet your favourites - Part 01 (unit?unit=188&lesson=203)
- Six Degrees of Separation : Meet your favourites - Part 02 (unit?unit=188&lesson=204)
- Six Degrees of Separation : Meet your favourites - Part 03 (unit?unit=188&lesson=205)
- Area Calculation - Don't Measure (unit?unit=188&lesson=206)
- Area Calculation - Don't Measure - Part 01 (unit?unit=188&lesson=207)
- Area Calculation - Don't Measure - Part 02 (unit?unit=188&lesson=208)
- Area Calculation - Don't Measure - Part 03 (unit?unit=188&lesson=209)
- Area Calculation - Don't Measure - Part 04 (unit?unit=188&lesson=210)

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Week 10: Assignment 10

The due date for submitting this assignment has passed.

Due on 2024-10-02, 23:59 IST.

As per our records you have not submitted this assignment.

1) What will be the output of the following Python code? ***1 point***

```
s = "Hello, World!"
print (s[7:12 ])
```

- "World"
- "World!"
- "Worl"
- "orld"

No, the answer is incorrect.
Score: 0

Accepted Answers:
"World"

2) Which string method would you use to remove all leading and trailing whitespace from a string in Python? ***1 point***

- strip()
- split()
- replace()
- join()

No, the answer is incorrect.
Score: 0

Accepted Answers:
strip()

3) Given the string s = "PythonProgramming", what does s [::2] return? ***1 point***

- "PythonProgramming"
- "Pto rgamn"
- "PyonPormig"
- "PtoPormig"

No, the answer is incorrect.
Score: 0
Accepted Answers:
"PtoPormig"

4) Why are names often converted to lowercase and spaces removed when implementing the FLAMES game in Python? ***1 point***

- To increase game difficulty
- To ensure consistent character comparison
- Because uppercase letters are not supported in Python strings
- To encrypt the names for privacy

No, the answer is incorrect.
Score: 0
Accepted Answers:
To ensure consistent character comparison

5) Given the names "Alice" and "Bob", what is the FLAMES result of their relationship according to the FLAMES game? ***1 point***

- Friends
- Love
- Affection
- Marriage
- Enemy
- Siblings

No, the answer is incorrect.
Score: 0
Accepted Answers:
Affection

6) Given a = np.array ([1, 2, 3, 4, 5]), what does print(a[1:4]) output? ***1 point***

- [1 2 3]
- [2 3 4]
- [2 3 4 5]
- [1 2 3 4]

No, the answer is incorrect.
Score: 0
Accepted Answers:
[2 3 4]

7) In the NumPy array arr = np.array ([[1,2,3],[4,5,6],[7,8,9]]), what is the value of arr[1,2]?

- 5
- 6
- 2
- 8

No, the answer is incorrect.
Score: 0
Accepted Answers:
6

8) What is the output of the following Python code? ***1 point***

```
s = "abcdef"
print (s[1:5:2])
```

- "bd"
- "bcd"
- "ace"
- "be"

No, the answer is incorrect.
Score: 0
Accepted Answers:
"bd"

9) Can numpy be used when working with images in Python? ***1 point***

- Yes
- No

No, the answer is incorrect.
Score: 0
Accepted Answers:
Yes

10) When comparing lossy and lossless compression methods, which of the following statements is true? ***1 point***

- Lossy compression reduces file size without any loss of quality.
- Lossless compression reduces file size without any loss of quality.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Lossless compression reduces file size without any loss of quality.

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X

Week 11: Assignment 11

The due date for submitting this assignment has passed.

Due on 2024-10-09, 23:59 IST.

As per our records you have not submitted this assignment.

1) Which Python library is commonly used for automating web browsers for tasks like testing or web scraping? ***1 point***

- datetime
- selenium
- chrome
- webdriver

No, the answer is incorrect.
Score: 0
Accepted Answers:
selenium

2) In Selenium, what is the purpose of the WebDriver (e.g., **webdriver.Chrome()**)? ***1 point***

- To interact with databases
- To send HTTP requests
- To control a web browser programmatically
- To parse HTML and XML documents

No, the answer is incorrect.
Score: 0
Accepted Answers:
To control a web browser programmatically

3) Which method is used in Selenium to open a specific URL in the web browser? ***1 point***

- driver.open(url)
- driver.load(url)

- driver.navigate(url)
- driver.get(url)

No, the answer is incorrect.
Score: 0
Accepted Answers:
driver.get(url)

4) In Selenium, how can you simulate pressing the Enter key in a text input field? ***1 point***

- input field.send keys(Keys.ENTER)
- input field.submit()
- input field.send keys(Keys.RETURN)
- input field.press('Enter')

No, the answer is incorrect.
Score: 0
Accepted Answers:
input field.send keys(Keys.RETURN)

5) How can you get the current local date and time in Python using the **datetime** module? ***1 point***

- datetime.date.today()
- datetime.datetime.now()
- datetime.time.now()

No, the answer is incorrect.
Score: 0
Accepted Answers:
datetime.datetime.now()

6) Which function from the **calendar** module can be used to create a formatted string representing a month's calendar? ***1 point***

- calendar.printmonth()
- calendar.month()
- calendar.monthcalendar()

No, the answer is incorrect.
Score: 0
Accepted Answers:
calendar.month()

7) Which function would you use to replace characters in a string in Python? ***1 point***

- string.modify()
- string.replace(old, new)
- string.remove(old)
- string.update(new)

No, the answer is incorrect.
Score: 0
Accepted Answers:
string.replace(old, new)

8) Which of the following statements correctly imports the **datetime** module in Python? ***1 point***

- import datetime
- from datetime import datetime
- import datetime as dt
- All of the given options

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of the given options

9) What does the following Python code output? ***1 point***

```
import calendar
print(calendar.isleap(2024))
```

- True
- False
- 2024.0
- None

No, the answer is incorrect.
Score: 0
Accepted Answers:
True

10) Using the datetime module, how can you print the current date 7 times, each time increasing the day by 1 from the current date? ***1 point***

-
```
for i in range(7):
    print(datetime.datetime.now() + datetime.timedelta(days=i))
```
-
```
for i in range(7):
    print(datetime.date.today() + datetime.timedelta(days=i))
```
-
```
for i in range(7):
    print(datetime.datetime.today().add(days=i))
```
-
```
for i in range(7):
    print(datetime.date.now().add(days=i))
```

No, the answer is incorrect.
Score: 0
Accepted Answers:
for i in range(7):
print(datetime.date.today() + datetime.timedelta(days=i))

X

Week 12: Assignment 12

The due date for submitting this assignment has passed.

Due on 2024-10-16, 23:59 IST.

Assignment submitted on 2024-10-16, 20:35 IST

1) What is the key operation performed when the number n in the Collatz Conjecture is even? ***1 point***

- Add 1
- Multiply by 3 and add 1
- Divide by 2
- Subtract 1

Yes, the answer is correct.
Score: 1

Accepted Answers:
Divide by 2

2) What happens to an odd number n in the Collatz Conjecture sequence? ***1 point***

- It is divided by 2
- It remains unchanged
- It is replaced by $n \times 3 + 1$
- It is replaced by $n - 1$

Yes, the answer is correct.
Score: 1

Accepted Answers:
It is replaced by $n \times 3 + 1$

3) What is the ultimate goal of the Collatz Conjecture sequence? ***1 point***

- Reach the number 0
- Return to the starting number
- Reach the number 1
- Cycle through odd numbers

No, the answer is incorrect.
Score: 0

Accepted Answers:
Reach the number 1

4) Which of the following best describes the Collatz Conjecture? ***1 point***

- It has been proven for all natural numbers
- It remains an unsolved problem in mathematics
- It is a trivial problem with a simple solution
- It only applies to prime numbers

Yes, the answer is correct.
Score: 1

Accepted Answers:
It remains an unsolved problem in mathematics

5) What is the main idea behind the PageRank algorithm used by Google? ***1 point***

- Count the number of keywords on a page
- Rank pages based on random walks on a graph of web links
- Rank pages based on user reviews
- Rank pages alphabetically

Yes, the answer is correct.
Score: 1

Accepted Answers:
Rank pages based on random walks on a graph of web links

6) In PageRank, what happens when a page has a higher number of inbound links from other important pages? ***1 point***

- Its rank decreases due to the load on the server
- Its rank increases
- Its rank remains unchanged
- It is marked as a less relevant page

Yes, the answer is correct.
Score: 1

Accepted Answers:
Its rank increases

7) Which technique is used in the PageRank algorithm to determine the rank of a web page? ***1 point***

- Depth-first search
- Hyperlink analysis
- Random walk simulation

- Data scraping

Yes, the answer is correct.
Score: 1

Accepted Answers:
Random walk simulation

8) PageRank relies heavily on the structure of the: ***1 point***

- Web page content
- Hyperlink network between web pages
- User interaction data
- Server location

Yes, the answer is correct.
Score: 1

Accepted Answers:
Hyperlink network between web pages

9) PageRank was developed primarily to solve which problem? ***1 point***

- Calculating the shortest path in a network
- Ranking the importance of web pages on the internet
- Counting the total number of web pages
- Reducing the size of search engine databases

Yes, the answer is correct.
Score: 1

Accepted Answers:
Ranking the importance of web pages on the internet

10) For which values between 200 and 3000 does the Collatz Conjecture not converge to 1? ***1 point***

- 2498.0
- 1576.0
- 2789.0
- None of the given options

Yes, the answer is correct.
Score: 1

Accepted Answers:
None of the given options

- Collatz Conjecture - Part 01 (unit?unit=245&lesson=262)
- Collatz Conjecture - Part 02 (unit?unit=245&lesson=263)
- JOC Conclusion (unit?unit=245&lesson=264)
- **Quiz: Week 12: Assignment 12 (assessment?name=500)**
- Week 12: Programming Assignment 1 (/noc24_cs113/progassignment?name=494)
- Week 12: Programming Assignment 2 (/noc24_cs113/progassignment?name=497)
- Week 12: Programming Assignment 3 (/noc24_cs113/progassignment?name=498)
- Week 12 Feedback Form: The Joy of Computing using Python (unit?unit=245&lesson=265)

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