Week 1- Quiz(Graded)

Hope that you've gone through the course content for week-1 as well as covered the assignment before attempting the quiz.

- This form accepts the solution only once, so make sure you don't press the submit button accidentally. No requests will be entertained.
- **Use the SAME email ID which you used for registering for Summer Analytics 2025**.
- Please follow the honor code, which otherwise may lead to harsh actions being taken.

All the best :)

Name *

Email ID (fill the registered mail id)*

Are you from IIT Guwahati?*

- ○ Yes
- ◉ No

If you are from IIT Guwahati, provide your roll number

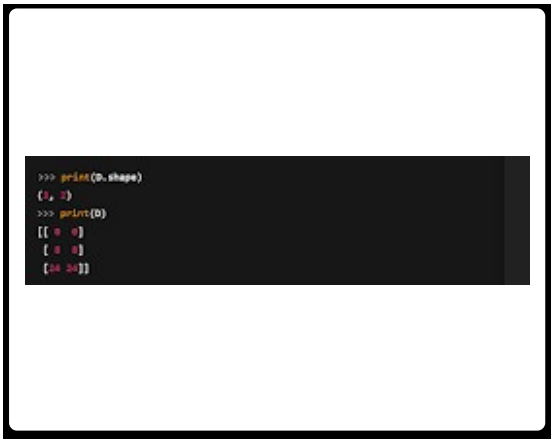
Part 1 of Quiz

Q1. What is output of this code? 5 points

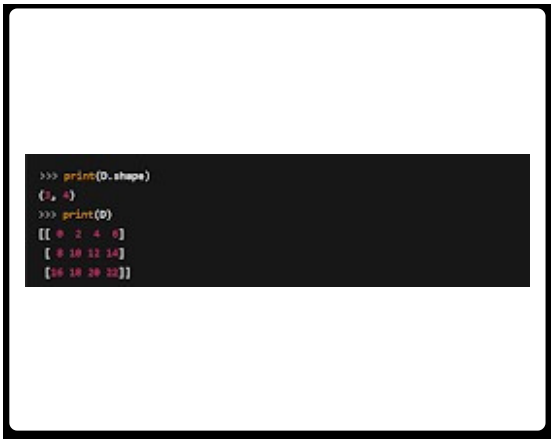
```
import numpy as np
A = np.arange(12).reshape(3,4)
B = np.array([1, 2, 3])
C = A[:, ::2]
D = B[:, None] * C
print(D.shape)
print(D)
```

Option 1

Option 2



Option 3



Option 4

Q2. A dataset of annual incomes (in $k) is: 3 points
30,35,40,40,50,55,500
What is the most appropriate summary of central tendency?

- ○ Mean = 107.14
- ○ Mode = 40
- ◉ Median = 40
- ○ All are equally good

Q3. What is output of this code 4 points
(\n represents line break i.e. text after this symbol appears in newline)

```
for i in range(5):
    if i % 2 == 0:
        break
else:
    print("Done")
print("Finished")
```

- ○ Done
- ◉ Finished
- ○ Done \nFinished
- ○ Syntax Error

Q4. A dataset’s first quartile is 10 and third quartile is 30. A new extreme value of 1,000 is added. Which statements are true? 3 points

- ○ Q1 and Q3 both shift toward the new value; IQR increases
- ◉ Q1 and Q3 remain the same; IQR remains 20
- ○ Q1 remains 10, Q3 increases; IQR increases
- ○ Both quartiles shift; IQR remains the same

Q5. (Please note this is a multiple correct answer where more than one options maybe correct.) 4 points

Which snippet correctly plots the rolling 7-day max as a green dotted line on top of the daily temperatures (blue solid line)?

```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np

dates = pd.date_range('2025-01-01', periods=90)
temps = pd.Series(15 + 10 * np.sin(np.linspace(0, 3*np.pi, 90)), index=dates)
df = pd.DataFrame({'temp': temps})
```

- [x] Option 1

- [x] Option 2

- [ ] Option 3
- [ ] D) All of the above

Q6. Consider the table below. Which of the above variable(s) are classified as ordinal variable(s)? (Multiple Correct) 4 points

ID	Age	Gender	Height	Blood group	LDL †	Feeling happy?	Number of children	Smoke?	Social class
1	25	M	1.52	O	154	Strongly agree	0	No	II
2	35	F	1.66	B	132	Disagree	1	Yes	III
3	44	M	1.44	B	151	Agree	3	Yes	II
4	28	M	1.22	AB	198	Indifferent	0	No	I
5	35	F	1.43	A	231	Indifferent	2	Yes	II
6	42	M	156	O	222	Agree	2	Yes	I
7	36	F	1.81	B	103	Strongly disagree	1	No	IV
8	38	M	1.54	AB	125	Strongly agree	1	Yes	III
9	30	M	1.47	A	280	Indifferent	0	No	V
10	40	F	1.18	B	187	Strongly disagree	6	No	III
:	:	:	:	:	:	:			

- [ ] ID
- [ ] Age
- [ ] Gender
- [ ] Height
- [ ] Blood Group
- [ ] LDL

- [x] Feeling Happy
- [ ] Number of Children
- [ ] Smoke?
- [x] Social Class

Q7. With respect to this code which in test returns true 3 points

```
my_list = [10, 20, 30]
my_dict = {'x': 10, 'y': 20, 'z': 30}
```

- (•) A. 20 in my_list
- ( ) B. 20 in my_dict
- ( ) C. 'y' in my_list
- ( ) D. None of the above

Part 2 of quiz (based on provided assignment)

Q8. Which car has the highest horsepower? 3 points

- ( ) A. 'ford mustang'
- ( ) B. 'chevrolet impala'
- (•) C. 'pontiac grand prix'
- ( ) D. 'buick estate wagon (sw)'

Q9. How many cars have mpg ≥ 35? 3 points

- A. 3
- B. 14
- C. 27
- D. 36 (selected)

Q10. What is the most common origin of cars with horsepower > 100 and weight < 3000? 3 points

- A. usa (selected)
- B. japan
- C. europe
- D. All are equally common

Q11. What is the mean acceleration (rounded to 2 decimals) of cars from Japan? 3 points

- A. 13.41
- B. 14.46
- C. 15.50
- D. 16.17 (selected)

Q12. Which year had the highest average mpg? 3 points

- A. 70
- B. 76
- C. 80
- D. 82