IBM_DataScience

March 11, 2024

1 IBM Tools for Data Science - Final Exam

1.1 Introduction

You will be provided with an empty Jupyterlite notebook which you will launch in the course, to complete this assignment. You will need to include a combination of markdown and code cells. You will likely need to use the Markdown cheat sheet to help you determine the appropriate syntax for your markdown.

1.2 Data Science Languages

1. Python
2. R
3. SQL
4. Julia
5. Java
6. Scala
7. MATLAB
8. Go
9. C/C++

1.3 Data Science Libraries

1. NumPy
2. Pandas
3. MatplotLib
4. Seaborn
5. Scikit-learn
6. Keras
7. TensorFlow
8. PyTorch
9. Apache Spark
10. Scala: Vegas
11. Scala: BigDL
12. R: ggplot
13. R: dplyr
14. R: stringr
15. R: caret

1.4 Data Science Tools

1. MySQL
2. PostgreSQL
3. MongoDB
4. Apache CouchDB
5. Apache Cassandra
6. Hadoop
7. Spark
8. AirFlow
9. KubeFlow
10. Nifi
11. NodeRED
12. Prometheus
13. IBM Explainability 360 toolkit
14. Jupyter (Notebook and labs)
15. RStudio
16. IBM Waton
17. Spyder
18. Apache Zeppelin

1.5 Python Code

[8]:
```
# some examples of arthmetic expr in python
# First, define some numbers
x = 1
y = 2
z = 3
print(x, y, z)
```

```
1 2 3
```

[12]:
```
# Then we can do some basic math on them
a = x + z
b = y + z
c = y * z
print(a, b, c)
```

```
4 5 6
```

[15]:
```
# now we can make even more complex examples
f = 3 * a + 2 * b + 3 * c
g = (a * b * c) + (x + y + z)
h = a ** x + b ** y + c ** z
print(f, g, h)
```

```
40 126 245
```

[31]:
```python
# given a number of minutes, convert it to hours and print the string
def minutes_string(minutes):
    print(f'{minutes}m is: ', end='')
    hours = minutes // 60
    min_remain = minutes % 60
    ms = 'minute' if min_remain == 1 else 'minutes'
    if hours == 0:
        print(f'{min_remain} {ms}')
    else:
        hs = 'hour' if hours == 1 else 'hours'

        if min_remain > 0:
            print(f'{hours} {hs} and {min_remain} {ms}')
        else:
            print(f'{hours} {hs}')
```

[32]:
```python
# Several tests
minutes_string(0)
minutes_string(1)
minutes_string(15)
minutes_string(60)
minutes_string(61)
minutes_string(75)
minutes_string(120)
minutes_string(121)
minutes_string(135)
```

```
0m is: 0 minutes
1m is: 1 minute
15m is: 15 minutes
60m is: 1 hour
61m is: 1 hour and 1 minute
75m is: 1 hour and 15 minutes
120m is: 2 hours
121m is: 2 hours and 1 minute
135m is: 2 hours and 15 minutes
```

1.6 Exam Objectives

- ☒ Exercise 2 - Create a markdown cell with the title of the notebook. (1 pt)
- ☒ Exercise 3 - Create a markdown cell for an introduction. (1 pt)
- ☒ Exercise 4 - Create a markdown cell to list data science languages. (3 pts)
- ☒ Exercise 5 - Create a markdown cell to list data science libraries. (3 pts)
- ☒ Exercise 6 - Create a markdown cell with a table of Data Science tools. (3 pts)
- ☒ Exercise 7 - Create a markdown cell introducing arithmetic expression examples. (1 pt)
- ☒ Exercise 8 - Create a code cell to multiply and add numbers. (2 pts)
- ☒ Exercise 9 - Create a code cell to convert minutes to hours. (2 pts)
- ☒ Exercise 10 -Insert a markdown cell to list Objectives. (3 pts)

- ☒ Exercise 11 - Create a markdown cell to indicate the Author's name. (2 pts)
- ☒ Exercise 12 - Share your notebook through GitHub (3 pts)
- ☒ Exercise 13 - Take a screenshot of the first page of the notebook. (1 pt)

2 Author

2.1 Enzo Ferber