Challenges, terminology, methods and technology

Quiz, 9 questions

Congratulations! You passed!

Next Item

1 / 1 points

1.
What are properties of time series data? (Select all that apply)

- [x] Time-series data is always analyzed with methods for time-series forecasting

Un-selected is correct

- [x] Time-series data can be found in various domains including IoT Sensor Data Analysis, System Biology and Finance

Correct
Correct

- [x] Time-series data must be immediately processed, otherwise the connection between different measurements cannot be made.

Un-selected is correct

- [x] Time-series data is only created by sensor devices

Un-selected is correct

- [x] During measurement of sensors the exact point in time of each measurement is stored together with the actual measured value

Correct

Correct

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- [x] In time series data each data point is associated with a time-stamp

Correct
Correct

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1 / 1 points

2.
What method do you use in case you want to predict the temperature a room in a building will have tomorrow 12 AM based on historic data like temperatures from this and other rooms, outside temperatures and weather forecasts?

- (•) Time Series Forecasting

Correct
Correct

- ( ) Exploratory Data Analysis
- ( ) Time Series Anomaly Detection
- ( ) Time Series Classification
- ( ) Stream Computing, On-The-Edge Analytics

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1 / 1 points

3.

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You are monitoring accelerometer sensor data attached to a bearing in a motor to capture vibration patterns. You want to detect previously unknown vibratory patterns which might indicate a problem like a failure. Which method would you use for this?

Hint: You have a history of data how the system behaves "normally" and you are comparing actual data against the history in order to find out if you have seen those patterns before.

- Time Series Forecasting
- Time Series Anomaly Detection

Correct
Correct

- Exploratory Data Analysis
- Time Series Classification
- Stream Computing, On-The-Edge Analytics

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1 / 1 points

4.
You are implementing a system which predicts based on traffic data, distance and speed sensors whether it should apply the brakes in a so-called "connected car". What describes best what you are doing? (Select all that apply)

- [x] Stream Computing, On-The-Edge Analytics

Correct
Correct, in deciding to break or not one can't afford to send data to a remote system because of latency. So this decision has to be don on the edge

- [ ] Exploratory Data Analysis

Un-selected is correct

Time Series Classification

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Correct
Correct, you have to classify a situation as dangerous or not based on given data

Time Series Forecasting

Correct
Correct, you are predicting future sensor values from past ones. E.g. the distance to a car running ahead of you based on velocity and traffic situation

Time Series Anomaly Detection

Correct
Correct, you are detecting abnormal situations, e.g. a sudden obstacle or break application (issuing an automatic break/stopping) of a car running ahead of you.

0.60 / 1 points

5.
What statements are true about IoT data analysis?

Currently, there are no reliable solutions for coping with constantly changing schemas from different types of sensors.

This should not be selected
We are actually teaching those in this course. Please revisit module "Challenges in IoT sensor data analysis and terminology"

Currently, there are no reliable solutions for coping with the high data ingestion rates

This should not be selected
We are actually teaching those in this course. Please revisit module "Challenges in IoT sensor data analysis and terminology"

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- [x] It is important to store historic data for compare present events with the past to make accurate predictions and detect anomalies

Correct
Correct

- [x] Constantly changing schemas of different sensor types need to be addressed

Correct
Correct

- [ ] Data storage is not important because we are dealing with real-time sensor data coming in on the fly

Un-selected is correct

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1 / 1 points

6.
Which statements are true about storage of historic data?

- [x] Historic data can be used to make predictions of future events

Correct
Correct

- [x] Historic data can me used to detect anomalies in present data

Correct
Correct. Historic data can me used to detect anomalies in present data by looking at past behavior

- [ ] Historic data must be stored in order to process real-time data coming from IoT sensors

Un-selected is correct

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1 / 1 points

7.

What is the difference between a vector and a tuple?

- A vector is allowed to contain scalars of different data types, where as a tuple is not
- A tuple is allowed to contain scalars of different data types, where as a vector is not

Correct

Correct

1 / 1 points

8.

What are properties of ApacheSpark ? (Select all that apply)

- ApacheSpark is a large-scale, massive-parallel data processing engine

Correct

Correct

- ApacheSpark is developed by IBM only

Un-selected is correct

- ApacheSpark code can be run seamlessly in parallel without changing the code

Correct

Correct

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ApacheSpark is a software specific to IoT sensor data analysis

Un-selected is correct

Although ApacheSpark is a parallel data processing engine, ApacheSpark code has to be modified in order to run in parallel once single node execution is not fast enough.

Un-selected is correct

ApacheSpark is OpenSource

Correct
Correct

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1 / 1 points

9.
Which programming languages are supported for writing programs on top of ApacheSpark?

Scala

Correct
Correct

Go

Un-selected is correct

R

Correct
Correct

JavaScript

Un-selected is correct

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C#

Un-selected is correct

Swift

Un-selected is correct

C/C++

Un-selected is correct

Python

Correct
Correct

Java

Correct
Correct