DAILY ASSESSMENT FORMAT

Date:	**27-07-2020**	**Name:**	**BINDUSHRI**
Course:	**Basics statistics**	**USN:**	**4AL17EC011**
Topic:	**Week-7**	**Semester & Section:**	**6th sem&Asec**
Github repository	**Bindushri**		

FORENOON SESSION DETAILS (9.00am to 1.00pm)

coursera Explore What do you want to learn?

Basic Statistics > Week 7 > 7.02 Test about proportion

Hypotheses and significance tests

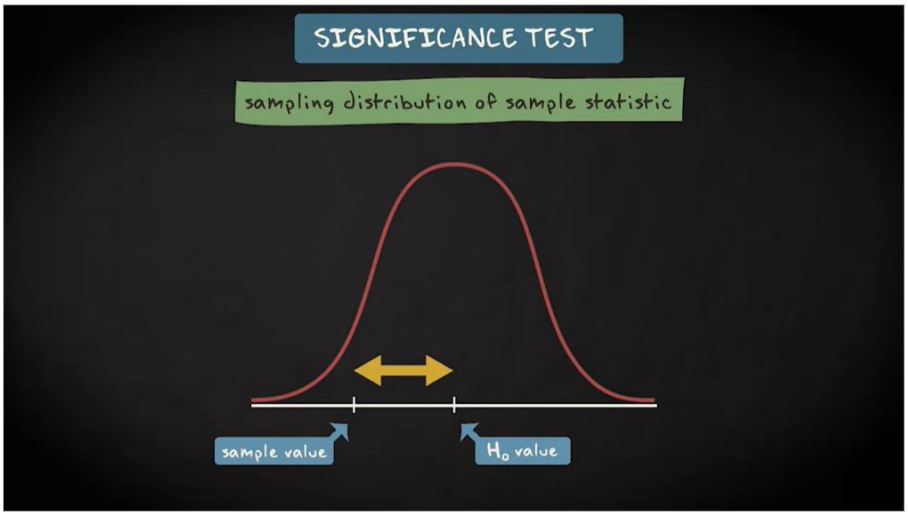
- **Reading:** Hypotheses and significance tests 10 min
- **Video:** 7.01 Hypotheses 5 min
- **Video:** 7.02 Test about proportion 7 min
- **Video:** 7.03 Test about mean 4 min

Step-by-step plan and confidence interval

Type I and Type II errors and example

Review

7.02 Test about proportion



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English

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coursera Explore What do you want to learn?

Basic Statistics > Week 7 > Step-by-step plan and confidence interval

Hypotheses and significance tests

Step-by-step plan and confidence interval

Type I and Type II errors and example

Review

Step-by-step plan and confidence interval

When conducting a significance test, you should think very carefully about your approach. In the first video in this section we'll guide you through a step-by-step plan. In the second video we'll demonstrate that significance tests are closely related to confidence intervals. In general, the results of a two-tailed significance test are in line with conclusions coming from a confidence interval.

Mark as completed

7.04 Step-by-step plan

Week-7

Basic statistics 21/07/2020.

Hypotheses and significance tests

operation about the parameters about the parameters researchers are interested in

↓

Hypotheses

↓

Significance testing

Hypotheses → explanations about population

Ex: $H_0: \pi = 0.08$ $H_0 = \pi < 0.08$

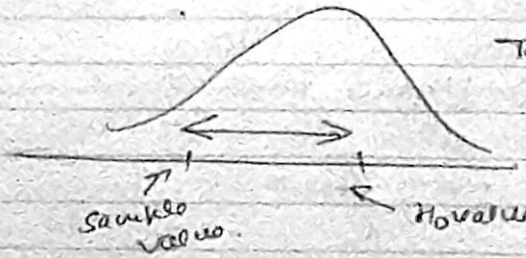
Significance test

We assume that the population value has a certain value the sample we collected comes from this population

↓

Sampling Distribution

we can determine what the sampling distribution of the sample proportion looks like



Test Statistic = number of standard errors sample value is removed from Ho value

~~I more the~~

DAILY ASSESSMENT FORMAT

Date:	**27-07-2020**	**Name:**	**BINDUSHRI**
Course:	**IOT using GOOGLE CLOUD**	**USN:**	**4AL17EC011**
Topic:	**Week-1**	**Semester & Section:**	**6th Asec**

AFTERNOON SESSION DETAILS(2.00pm to 5.00pm)

Choosing a Sensor
Graded Quiz • 8 min

Congratulations! You passed!
TO PASS 75% or higher

Keep Learning
Retake the assignment in **7h 59m**

GRADE
100%

Choosing a Sensor

LATEST SUBMISSION GRADE
100%

1. Given the following information about temperature sensors, answer the questions listed below. **1 / 1 point**

1. Negative Temperature Coefficient (NTC) thermistor

An NTC thermistor experiences such a large change in resistance per °C, small changes in temperature are reflected very fast and with high accuracy (0.05 to 1.5 °C). Because of its exponential nature, the output of an NTC thermistor requires linearization. The effective operating range is -50 to 250 °C for glass encapsulated thermistors or 150°C for standard.

2. Resistance Temperature Detector (RTD)

An RTD, consists of a film or, for greater accuracy, a wire wrapped around a ceramic or glass core. The most accurate RTDs are made using platinum but lower-cost RTDs can be made from nickel or copper. However, nickle and copper are not as stable or repeatable. Platinum RTDs offer a fairly linear output that is highly accurate (0.1 to 1 °C) across -200 to 600 °C. While providing the greatest accuracy, RTDs also tend to be the most expensive of temperature sensors.

3. Thermocouple

Sensors and Devices
Graded Quiz • 8 min

Due Jul 20, 9:5

Congratulations! You passed!
TO PASS 75% or higher

Keep Learning
Retake the assignment in **7h 59m**

GRADE
100%

Sensors and Devices

LATEST SUBMISSION GRADE
100%

1. You are designing an IoT system that measures a number of environmental factors in factory: light, temperature, oxygen levels, air particle levels, and humidity. **1 / 1 point**

You plan on placing sensors/devices in each room of the factory. For larger rooms you will place more sensors/devices (up to 10 in the assembly area).

What format should you use to send the data to the cloud?

- [ ] Send data for each device individually.
- [ ] Send the data by room.
- [x] It depends on the situation, a case can be made for either option.

Correct
Yes, a case can be made for either option. When designing an IoT network, think about the goal, gaining insights

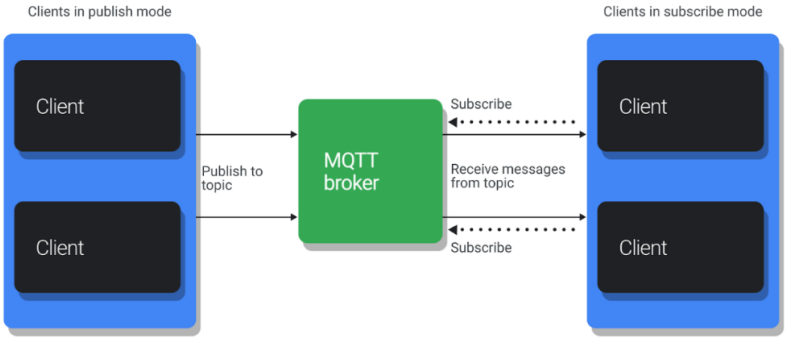
Google IoT Developer Prototyping Kits

Google works with partners to build device starter kits that make connecting to Google Cloud IoT Platform easy for developers. At this time, Google has partnered with fourteen companies to offer a wide variety of IoT developer prototyping kits.

Developers use kits to quickly create prototypes for projects. Kits may be selected for their device processor, sensors, expansion capabilities, etc. Before selecting a kit, an IoT developer needs to review each of the kits to determine the one that will be the best fit for the intended project. For example, if a project requires a low-cost board, the developer may want to investigate using the Mongoose TI starter kit or the Sierra wireless kit. When choosing a kit, select one that meets present as well as possible future specifications.

Kit name	Salient Characteristics	Board
Microchip AVR-IoT WG development board	Uses an AVR microcontroller, a CryptoAuthenticaIon secure element, Wi-Fi, temperature and light sensors	AVR-IoT WG
Microchip security development kit	Used for product authentication, file protection, two-factor logons, and prevents software piracy.	ATECC608A
ThingaOS T4G-Q4020	Ambient light luminosity, 3D accelerometer, 3D gyroscope, 3D magnetic field, temperature, humidity, pressure, PIR sensor.	Qualcomm IoT QCA-4020 chipset
Mongoose OS IoT Starter kit with ESP32	Temperature and humidity sensors, magnetic contact (door) switch, PIR (motion) sensor, Photocell Light sensor, Piezo buzzer, Micro Servo, and Diffused RGGB LED.	ESP32
Mongoose OS IoT Starter kit with TI CC3220	Low-cost board with buttons, LEDs, accelerometer, and temperature sensors	TI CC3220 board
Arm-based IoT kit		

MQTT is an industry-standard IoT protocol (Message Queue Telemetry Transport). It is a publish/subscribe (pub/sub) messaging protocol.

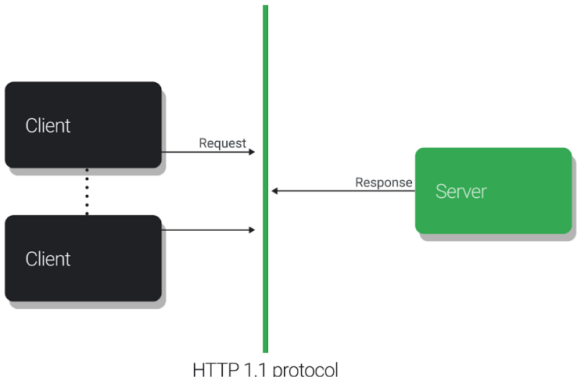


The publish/subscribe model is event-driven. Messages are pushed to clients that are subscribed to the topic. The broker is the hub of communication. Clients publish messages to the broker, and the broker pushes messages out to subscribers.

Messages include the topic in the message, which is used for routing information by the broker. This means that subscribers do not need to know the publisher, because all communication is done through messages. Messages are pushed to subscribers, so there must be an open TCP connection to the broker. If the connection is broken, the broker can hold messages for later transmission.

HTTP Protocol

HTTP is a "connectionless" protocol: with the HTTP bridge, devices do not maintain a connection to the cloud. Instead, they send requests and receive responses.



HTTP 1.1 protocol

MQTT and HTTP General Features Comparison

Comparison of MQTT and HTTP general features

MQTT	HTTP
- Lower bandwidth usage	- Lighter weight
- Lower latency, higher throughout	- Fewer firewall issues
- Supports raw binary data	- Binary data must be base64-encoded

MQTT is considered to be data focused, while HTTP is document focused. Which means MQTT is better suited to the rigors of IoT.

Delivery Guarantees

MQTT has three levels of service:

- At most once. Guarantees at least one attempt at delivery.

least once. Guarantees the message will be delivered at least once.

MQTT and HTTP
Graded Quiz • 8 min

✓ **Congratulations! You passed!**
TO PASS 75% or higher

Keep Learning

GRADE
100%

MQTT and HTTP

LATEST SUBMISSION GRADE
100%

1. Why would someone prefer MQTT over HTTP for IoT? **1 / 1 point**

- [x] MQTT is data-centric as opposed to document-centric like HTTP.

✓ **Correct**
Yes, MQTT is better suited to IoT because it is data-centric

- [x] MQTT is better than HTTP for resource constrained devices.

✓ **Correct**
Yes, MQTT is lightweight and uses the publish subscribe model.

- [x] MQTT enhances the whole IoT system because when one client is not working the rest of the system continues to work

IOT

Introduction to MQTT and HTTP

When connecting devices to google cloud platform you, will need to specify which communication protocol your devices will use

The choices are MQTT, HTTP, or both.

MQTT is an industry-standard IOT protocol. It is a publish/sub messaging protocol.

HTTP protocol is a connection less protocol.

Delivery guarantees

MQTT has three levels of service

- At most once. Guarantees at least one attempt at delivery
- At least once. Guarantees the message will be delivered at least once
- Exactly once. Guarantee the message is delivered only once.

MQTT also has

- last will and testament - If client is disconnected unexpectedly. the subscribers will be notified by the MQTT broker
- Retained message. New subscriber will get an immediate status.