UNIVERSITY OF CALIFORNIA SAN DIEGO.

UC San Diego
JACOBS SCHOOL OF ENGINEERING
Computer Science and Engineering

INTERNET OF THINGS AND AI CLOUD SPECIALIZATION

INTERNET OF THINGS: HOW DID WE GET HERE?

COURSE 1

Week 2 - Solutions

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1 Module 3

1.1 Lesson 1

1.1.1 Questions in videos

1. A log scale used to compress data and then expand the data on the receiver side is called what?
    - Toll quality: 8 bits/ sample at 8 kHz
    - Companding (Compression/Expansion)
    - Mu Law/ A Law
    - T1/E1 lines: 24/32 voice channels
2. What is the SS7?
    - Advanced intelligent network
    - Signal transfer point
    - Service control point
    - A complete package switched network for digital call protocol.

1.1.2 Practical Quiz

1. Given signal voltage of 4 millivolts and noise voltage of 40 microvolts, what is the signal-to-noise ratio in decibels? Write your answers without the units and as an integer.

48

2. Signalling System 7 (SS7) is a communication protocol in public switched telephone networks (PSTN):

   - Is based on Dual Tone Multifrequency signals sent along voice data in PSTN for call control.
   - Is a packet switched protocol used for setting up and tearing down calls, that became adopted internationally.
   - That uses multi-frequency tones for setting up calls between two users.
   - Is a packet switched protocol that was a building block of the Internet.

3. Which of these characteristics are representative of the mu-law, but not A-law?

   - This is used primarly in Europe.
   - It needs 13 bits for the uniform PCM equivalent.
   - Out the two, this provides a shorter a dynamic range.
   - This provides a better signal/distorsion performance when it deals with low levels signals.
   - The most significant bit for the word identifies the polarity.

4. What is the theoretical load capacity for the A-law? You do not need to put the units.

3.14

1.2 Lesson 2

1.2.1 Questions in videos

1. What was the main obstacle when enabling a new revenue bearing service such as 1-800 calls, on switch networks?
    - SS7 provied the same features
    - Rival companies created their own design
    - They were massive mainframe computers, which took years and millions of dollars in effort to add a new feature
    - There was not enough budget to make the mainfram
2. How did SS7 affect the competition on switch networks?
    - It provided the same features as large mainframe computers with smaller computers which facilitated updates or new features. Allowing small companies to enter the industry.
    - Processing was available through the computer.
    - Vendors were providing basic phone fucntionality.
    - Lots of small competitors could build the network elements.

1.2.2 Practical Quiz

1. Which of these are not true facts about "The Big 5"?
    - Ericcson started off as a company focused on repairing telegraph instruments.
    - McGinn was asked to temporarily serve as Lucent's CEO instead of Schact when the company struggled.
    - Nortel was discontinued due to bankruptcy.
    - In Berlin, Siemens manufactured the first electronically controlled telephone exchange.
    - In the year of 2007, NTT established a local subsidiary in Malaysia and Thailand.
2. Which of these statements is false?
    - There were 256 announcements at the switching system as of AIN Release 0.1.
    - The DPC, also known as the Destination Point Code, is the number that represents a node in the SS7 network.
    - Adjacent processors or APs can reduce the processing requirements of SCP's within the SS7 network as they provide database processing services.
    - The ITU-T built upon the ideas of the AIN in order to develop an equivalent called the CE-1.
    - ANSI is the American National Standards Institute.

1.3 Lesson 3

1.3.1 Questions in videos

1. Why is the spectrum below a thousand MHz considered beach front property?
    - It's more expensive
    - Data coverage is available at sea
    - One can get better coverage in densely populated areas.
    - Only available in coastal areas
2. What does IVR allow the user to do?
    - Interact with and access information in a device with voice commands recognized by a particular device.
    - Operate computer using partial voice command
    - Open and close applications without physically interacting with the computer
    - Operate device using only touch commands
3. 411 is a revenue making business? (T/F)
    - True
    - False

1.3.2 Practical Quiz

1. Which components listed would you most likely find in advanced IVR sytems in the modern era?
   - Web server with parts written in HTML.
   - Telephony card
   - XML telephony server
   - UDP network
   - TCP/IP network.
2. In addition to Alexander Graham Bell, who from the following is also credited for inventing the telephone?
   - Antonio Meucci from Italy.
   - The great American inventor Thomas Edison.
   - Guglielmo Marconi, the Italian inventor.
   - Samuel Morse, an American Inventor.
3. What country had the earliest example of a call center? Give the unabbreviated name of the country.

United Kingdom

4. Which of the following companies were providing telephone network infrastructure to the telephone operators in the late twentieth century?
   - Western Digital
   - Western Electric Company - Lucent
   - Nortel
   - Westinghouse Electric Corporation
   - Ericsson
5. RFC 791 defines one of the fundamental building blocks of the Internet called IP – the Internet Protocol. Select the only FALSE statement from the list below:
   - The Source Address and the Destination address are 4 bytes each.
   - IP packets contain (i) 24 byte header information and (ii) variable number of bytes corresponding to the payload data.
   - The total length of the IP packet specified by byte 3 (note that we count from 0, so this is the fourth byte) includes length of the header plus the payload.
   - The IP provides for reliable transmission of the packets from the source to the destination.
   - The addresses in IPv4 (IP version 4, specified by RFC 791) are typically represented by 4 numbers in the range 0 – 255, separated by decimal (.). One example is 192.168.0.0 through 192.168.255.255, a block of addresses used on a local network.

1.4 Lesson 4

1.4.1 Questions in videos

1. What was the purpose of the dial tone?

   - Inform caller the line was in use
   - Caller was directed to the operator
   - To signal that phone calls were able to be made.
   - Calls could not be made

   Correct! When you hear a dial tone it means that calls can go through

2. What caused the 911 Fiasco?

   - Too many calls were coming in and it overloaded the system
   - Malfunction of the operator could not get a hold of 911
   - The 911 phone line was dissabled and no calls could be made
   - A software glitch. There was a hard coded number which dropped calls after the switch reached a certain number of calls.

   Correct! The glitch placed a limit on the amount of calls that could go through to 911

3. What is a way people could access your personal information with the SS7 changes?

   - By attacking the vulnerabiltiy of cell towers.
   - Mobility between cell towers can leave the SS7 network vulnerable.
   - Finding passwords of the devices on the internet.
   - Routing the cell towers to a specific phone call using only the IP adress.

   Correct! When a phone is left vulnerable then any information can be reached.

1.4.2 Practical Quiz

1. What was the frequency of the early dial tone in America? Give the answer in Hz, but you do not need to explicity write Hz or Hertz.

   2600

2. Which of these statements is true?

   - CenturyLink was under contract with the state of Washington in order to manage the ESINet and to prevent another outage from occurring.
   - Minnesota was one of the states that experienced the 911 outage in April 2014.
   - Verizon Business is the provider in 11 counties in Northern California for 911 service.
   - The outage occurred just before midnight PDT and lasted for about 7 hours.
   - Intrado is a Colorado-based provider of 911 service.

   Correct! ATT was broken up into many smaller companies.

3. Who was/were involved in the request to the FCC for cybersecurity implementations within the SS7 protocol?

   - Peter Wood
   - Ron Wyden
   - Ajit Pai
   - C.E. Woolman
   - Ted Lieu

1.5 Assignment

1. Why did STP always come in pairs?
   - To increase reliability in the telephony networks.
   - To decrease the vulnerability of the telephony network.
   - To increase the functionality of the telephony network.
   - To increase productivity in the telephony network.
2. What is step four in the core attributes of speech?
   - Data search and quiery.
   - Voice activation.
   - speech recogniton.
   - speech response.
3. Why were phones able to do more complex functions?
   - Phones became digital.
   - The microprocessor improved in development.
   - The Public demanded a more useful phone.
   - Phones were no longer dependent on a landline.
4. What group is not part of the Big 5?
   - Nortel.
   - Siemens.
   - Western industry.
   - Bell Labs innovations.
5. Which of these characteristics are representative of the mu-law, but not A-law?
   - It needs 13 bits for the uniform PCM equivalent.
   - This is used primarily in Europe.
   - The most significant bit for the word identifies the polarity.
   - This provides a better signal/distortion performance when it deals with low level signals.
   - Out of the two, this provides a shorter dynamic range.
6. Which of these statements is false?
   - The DPC, also known as the Destination Point Code, is the number that represents a node in the SS7 network.
   - Adjacent processors or APs can reduce the processing requirements of SCP's within the SS7 network as they provide database processing services.
   - ANSI is the American National Standards Institute.
   - The ITU-T built upon the ideas of the AIN in order to develop an equivalent called the CE-1.
   - There were 256 announcements at the switching system as of AIN Release 0.1.

7. Which components listed would you most likely find in advanced IVR sytems in the modern era?

   - UDP network
   - TCP/IP network
   - web server with parts written in HTML
   - XML telephony server
   - telephony card

8. What was the frequency of the early dial tone in America? Give the answer in Hz, but you do not need to explicity write Hz or Hertz.

   2600

9. Let's say I, as an employer, had employees that often had to take phone calls not directed to the part of the company they were responsible for. What is a convenient solution to this problem, considering all that you have learned from this module? Give the abbreviated form of the answer.

   IVR

10. What is another name for the 911 call centers? Give the unabbreviated form of the answer.

    public-safety access point

2 Module 4

2.1 Lesson 1

2.1.1 Questions in videos

1. What is the purpose for the base unit on a handheld battery?
    - Reduce the amount of battery used
    - The base unite does all the call processing.
    - Back-up phone information
    - Process only certain calls
2. What was the number of phones ATT mistakenly estimated would be in usage by the year 2000?
    - One Hundred Thousand Phones.
    - Three Hundred Thousand Phones.
    - One Million Phones.
    - Nine Hundred Thousand Phones.

2.1.2 Practical Quiz

1. Which of these statements is true?

   - Cooper recorded the first cell phone call to his rival at ATT, Joel Engel.
   - The first portable cell phone was released at a price of $5,000.
   - Cars were once utilized for mobile phones because the amount of power required could only be supplied by the car battery.
   - Cooper and his wife are inventors of a phone, called Jitters, which caters to senior citizens.
   - None of the above

2. There are two types of wireless bands – licensed and unlicensed. The unlicensed bands are sometimes called "Industrial, Scientific, and Medical" (ISM) bands. Select the two unlicensed bands from the list below (Hint: Wiki is a decent source for finding spectrum allocations in different countries for different use cases).

   - 915 MHz and 2.4 GHz used for personal area networks (PAN) like Zigbee
   - 2.45 and 5.8 GHz band used for WiFi
   - 800/900 MHz and 1800/1900 MHz bands used for cellular telephones
   - 88 MHz to 108 MHz band
   - 401 – 406 MHz band, also called Medical Device Radio Communications (MedRadio)

3. What is the original widespread radio interface that is found in 3G networks? Give the abbreviated form.

   W-CDMA

4. Which channel access method is found in GSM? Give the abbreviated form.

   TDMA

2.2 Lesson 2

2.2.1 Questions in videos

1. What are the components of the Core Network?
   - MSC, SMSC, SS7, VLR, HLR
   - SMS, SS7, BSC, PSTN, VLR
   - MSC, SMSC, PTSN, HLR, VLR
   - SS7, MSC, RNC, BSC, PSTN
   - MIME
2. How did prepaid phone services help expand the cellular phone industry?
   - One could acess phone usage with the sim card
   - They where able to leap frog wire line telephony to cellular
   - Prepaid phones where easier to pay
   - People with bad credit and kids were now able to get services

2.2.2 Practical Quiz

1. Which of the following is an accurate term and definition pairing?

   - VLR or the Visiting Location Register - primary database for storage of permanent subscriber information
   - PSTN or Public Switched Telephone Network - landline telephone system
   - SMSC or Short Messaging Service Center - part of the network handling SMS operations
   - RNC or Radio Network Controller - responsible for performing many important tasks, such as call processing and link maintenance, within the UTRAN network.
   - None of the above

2. What is the one adjective to describe the computing architecture that allows the system to have fault tolerance?

   distributed

3. Select the steps of the prepaid billing system that are correctly implemented below.

   - The gateway retrieves what number is calling and sends that to the billing system.
   - The billing system sends the user's account information to the gateway that starts the call.
   - The real time billing system collects the data that the gateway transmits and adjusts the call cost and updates the user's account balance.
   - The billing system verifies whether the caller is permitted to call.
   - The gateway monitors the call that is sent so that the sender does not exceed any limitations that the system had set for the customer.

4. What are the two things that start with the letter "A" that must be done before the call starts? (Keep your answer comma-separated to make grading easier. That means add a comma and then a space between your answers.)

   authorization, authentication

2.3 Lesson 3

2.3.1 Questions in videos

1. Who is the Source-Filter Model of Speech credited to?
   - Rober Moog
   - Bishnu Atal
   - Jerry Lawson
   - Gunnar Fant
2. What was 3GPP2 mainly for?
   - Australia, Japan, China, and America
   - America, Japan, China, and Korea
   - Japan, China, North korea, and South korea
   - America, Australia, North korea, and South korea

2.3.2 Practical Quiz

1. Which of these statements is true?
   - The bandwidth of 3G is 100MHz.
   - The technology defining 1G is analog.
   - 3.5G cellular technology is 3G cellular technology with GPRS.
   - 2G was the first generation to allow text messaging service.
   - MAGIC is the acronym to describe 3G cellular technology.
2. What is another word for the all-pole approach?
   auto-regression
3. Which of these statements is true?
   - Gunnar Fant founded the Speech Transmission Labratory after visiting the acoustics labratory in Stanford.
   - Gunnar Fant was first employed in the telephone company Ericsson.
   - Two sources in speech production are the voiced speech and unvoiced speech.
   - The average frequency of a male voice is approximately 200Hz.
   - None of the above.
4. True or false?
   "One of the ways for improving capacity of the cellular telephony was to get more spectrum."
   - True
   - False

2.4 Lesson 4

2.4.1 Questions in videos

1. In what amount of GHz did wifi use to run on?
   - 2.4GHz
   - 1.5GHz
   - 3.0GHz
   - 5.0GHz
2. What was the original purpose of bluetooth?
   - Hand free head set
   - Smartphone usage
   - Car multimedia
   - Wireless speaker
3. Besides RFID what is another low power radio?
   - ZigBee
   - VHF
   - BNR
   - RNC

2.4.2 Practical Quiz

1. Wireless network standards have a name given by numbers, but often have a letter that follow it. What are the differences between the different letters?

   - data rate
   - cost
   - range
   - Quality of Service(QoS) support
   - amount of signal interference

2. What is the name for the small network of devices connected through Bluetooth protocols, usually comprising of a master and slaves?

   piconet

3. Which of these statements is true about the low power radios?

   - The ANT service provides low power radio for both iOS and Android
   - Low power radios are based on the IEEE 802.15.5 standard.
   - The name Zigbee was derived from the dance of honey bees.
   - A passive RFID tag will utilize the interrogator's wave energy to bring information back to the interrogtator.
   - None of the above

2.5 Lesson 5

2.5.1 Questions in videos

1. Why is signal traffic needed for both directions
    - It's not needed
    - Becuase the reciever needs to send their own signal
    - Becuase it is one to one
    - The caller only needs to send their own signal
2. What kind of recievers do broadcasters want?
    - Low powered mobility
    - High powered mobility
    - Ultra low powered mobility
    - Ultra high powered mobility
3. How is a transmiter in a N to 1 network similar to a receiver in a 1 to N network?
    - They both need to be ultra high powered mobility
    - They both need to be ultra low powered mobility
    - They both need to be high powered mobility
    - they both need to be low powered mobility
4. What enables us to connect to multiple sensors and implement all the network technologies?
    - The microprocessor and the digital signal processor
    - The mricoprocessor
    - The digital signal processor
    - The data service

2.5.2 Practical Quiz

1. True or false:
   "The Telephony network is all analog communication and the Internet is all digital communication."

   - True
   - False

2. What is another name for utilizing telephony to communicate 1-to-N?

   Voice Broadcast

3. True or false: **"The current Telephony network is all circuit-switched communication and the Internet is all digital communication."**

   - True
   - False

4. What is the term defined by the concept of connecting any device to the internet? Give your answer in abbreviated form.

   IOT

2.6 Assignment

1. Why do phone services keep track of phone records and locations?
   - Theft
   - Data coverage
   - Billing purposes
   - Legal reasons
2. What is the frequency of a 4G service?
   - 2500MHz
   - 1700MHz
   - 2100MHz
   - 1000MHz
3. What were the two versions of TDMA?
   - North american: IS136, GSM/ Asian: IS54
   - North american: IS54, IS136/European: GSM
   - North american: GSM/European: IS54, IS136
   - European: IS54, IS136/Asian: GSM
4. How can you connect to multiple sensors and implement all the network technologies?
   - The microprocessor
   - The digital signal processor
   - The data service
   - Because of the microprocessor and the digital signal processor
5. What is the original widespread radio interface that is found in 3G networks? Give the abbreviated form.

W-CDMA

6. Which of the following is an accurate term and definition pairing?
   - VLR or the Visiting Location Register - primary database for storage of permanent subscriber information
   - PSTN or Public Switched Telephone Network - landline telephone system
   - SMSC or Short Messaging Service Center - part of the network handling SMS operations
   - RNC or Radio Network Controller - responsible for performing many important tasks, such as call processing and link maintenance, within the UTRAN network
   - None of the above

7. Which of these statements is true?

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auto-regression

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   - The name Zigbee was derived from the dance of honey bees.
   - The ANT service provides low power radio for both iOS and Android
   - A passive RFID tag will utilize the interrogator's wave energy to bring information back to the interrogtator.
   - None of the above

10. What is the protocol that is in all 4G devices? Give the abbreviated form of the answer.

IP

11. Let's assume that I am walking at a slow pace to the supermarket. While I am walking and carefully avoiding cars as I do so, I am also browsing the internet on my 4G phone. What is the maximum data rate I can expect? Give your answer in units of Mbps, but do not include the units itself to make grading easier.

1000

3 Module 5

3.1 Lesson 1

3.1.1 Questions in videos

1. What would you dial when the phone stopped ringing as soon as you got to it?
   - x*69
   - *66
   - Press redial
   - *60
2. What was phase 1 of the FCC's E911?
   - Track the location of the phone
   - Foward the call to the closest network and make the call from there
   - Complete all 911 calls even if there is no carrier
   - Shorten the response time of 911
3. How does GPS work?
   - Providing a signal that can be traced by networking towers
   - Using the area code to determine a specific area
   - Finding the location of the closest networking tower
   - Triangulating with 3-4 satellites
4. What did the Iphone do with the Accelerometer?
   - Switch between portrait and landscape camera view mode
   - Write a phone number in the air
   - Recieve and make calls faster
   - Have greater storage for applications and pictures
5. What is the difference between Whatsapp and SMS?
   - SMS is WIFI based
   - Whats app is WIFI based
   - There is no difference
   - Charges are made to the application

3.1.2 Practical Quiz

1. How is the 1 800 DENTIST number used in the 1 800 process?

   - It is the direct number of the company.
   - It is used to identify the caller.
   - Used to identify a real address in a database to send a mail.
   - Used the identify a real phone number in a database to call.
   - Used to identify who the caller can pay for th call.

   Correct! After this the caller and the real phone number is automatically connected.

2. About how many years did it take to cover U.S. and Canada in 911 coverage?

   45

   Correct! It took quite some time to develop the system.

3. What is the minimum number of satellites to use GPS?

   3

   Correct! This is the minimum amount for it to work. More would help precision, but is not required.

4. What sensor did Samsung's phone use to allow you to write phone numbers in the air?

   accelerometer

   Correct! This is one of the unique sensors that phones started to have and used for this peculiar feature.

5. True or false: **"The cellular telephony was all analog in 1G and and became all digital 2G onwards."**

   - True
   - False

   Correct. 1G cellular telephony adopted SS7 from PSTN (public switched telephony network) for the control plane, that had evolved to digital. The data plane was analog and used frequency modulation in a 30 kHz band for the voice, i.e. the data plane. From 2G onwards, the voice payload became digital and subsequently encompassed video, browser, gaming, and other digital traffic.

3.2 Assignment

1. What is 3 character code used to call someone back that you just missed?

   *69

2. What system did mobile phones have to integrate with that forced the adoption of location services?

   - 69
   - 60
   - 911
   - 311
   - 411

   Correct! The US mandated the requirement of finding the location of a 911 caller to better find them in the case of an emergency.

3. Why was 888, 877, and 855 phone numbers created?

   - People wanted their own 1-800 number for their town
   - 1-800 was so popular it needed new numbers to process
   - There was a greater profit coming up with with new 1-800 numbers
   - 40% of long distance calls where 1-800 numbers

4. When calling 911 what system directs the caller to their local emergency department?

   - The operator
   - A system ran by 911
   - MSAG
   - There is a direct phone line when calling local 911

   Correct! This automated database system connects phone numbers with addresses.

5. When did GPS become a standard feature in smartphones?

   - 2000
   - 1990
   - 2010
   - 2005

6. What was the first time the accelerometer was utilized in a smartphone?
   - Samsungs writing a phone number in the air
   - Iphones portrait and landscape camera view
   - Increasing the speed of the processor
   - Increasing the memory space
7. What app gives the ability to blog at any given time from your phone?
   - Twitter
   - Facebook
   - Whatsapp
   - Youtube

   Correct! This relied on the SMS system and allowed you to broadcast your thoughts to others.
8. What is the minimum number of satellites to use GPS?

   3
9. What sensor did Samsung's phone use to allow you to write phone numbers in the air?

   accelerometer
10. Which of the following are major applications on a phone that is not voice?
    - SMS
    - Facebook
    - WeChat
    - Twitter
    - Netflix

4 Module 6

4.1 Lesson 1

4.1.1 Questions in videos

1. How many internet of things will there be by 2020?
   - 50 Billion devices
   - 50 Million devices
   - 300 Billion Devices
   - 100 Million Devices
2. What is NOT an option for a compute platform?
   - Single Board Computers (SBC)
   - Microcontrollers
   - Radios
   - Smart Phones

4.1.2 Practical Quiz

1. How is the bottle of whiskey made smart in our example?
   - Can talk.
   - Can upload to a website about your drinking statistics.
   - Can move.
   - Can detect whether it has been opened and interact with a phone.
   - Can detect what kind of whiskey is in it.

   Correct! In our example it knows its state and can tell the user info.

2. Which of the following are devices that we mention as an example of IoT devices?
   - Phone
   - Thermostat
   - Toilet
   - Fridge
   - Television

3. Which of the following do you need to build your own IoT?

   - modular to add on components
   - low cost
   - compute platform
   - optimal power
   - ability to act

4. What is the name of the device we will be using? Just the first two words as one word without the model number and all lower case.

   dragonboard

5. What cloud platform will be using in Course 3?

   - Google Cloud Compute
   - Qualcomm Cloud
   - Microsoft Azure
   - The Cloud
   - Amazon Web Services

4.2 Lesson 2

4.2.1 Questions in videos

1. What would you turn off so your location is not tracked?
   - Google maps
   - Frequent Locations
   - Google earth
   - GPS
2. How was the tint of the glass in a home be altered?
   - Sending themt to get tinted
   - Putting drapes over the glass
   - Through voltage
   - Changing the glass
3. How can car manufactures speed up the recall stage?
   - This issue has not been solved yet
   - The car diagnoses itself and send information right to the manufacturer's.
   - Send messages to the car manufacturers when the car breaks down
   - Dealerships send diagnosis when customers return the cars

4.2.2 Practical Quiz

1. What is the method of using massive amounts of information to infer new information in the technology age?
   - Learning
   - Big Data
   - Spying
   - Data collection
   - Reading

   Correct! This is called Big Data, the aggregation of huge amounts of data for analy

2. What is the approximate amount of time in minutes that it takes the brain to react to being full? Hint: Ganz mentions it many times

   5

   Correct! According to Ganz, the approximate time to ract to fullness is 5 minutes which is why the smart fork device was developed.

3. What attribute does Ganz think that Smart Home devices are trying to emphasize?

    - Joy
    - Sadness
    - Laziness
    - Happiness
    - Anger

    Correct! Smart Home devices attempt to reduce the amount of work that the user needs to do.

4. What will be center of the Smart Home?

    - Phone
    - Door
    - Television
    - Fridge
    - Computer

    Correct! We will control all these device through the device we always have.

5. Since the cars can not on all the time, how can power limits problem be solved as mentioned in the video?

    - Periodic wakes
    - Solar powered
    - Always on
    - Plugged in to grid
    - Never on

    Correct! In increments of time the car wakes up and listens to see if there any commands.

Lectures :

- Pregnancy Prediction
- Epicenter vs. Sleep

4.3 Assignment

1. How is the bottle of whiskey made smart in our example?

   - Can upload to a website about your drinking statistics.
   - Can detect whether it has been opened and interact with a phone.
   - Can move.
   - Can talk.
   - Can detect what kind of whiskey is in it.

2. Which of the following are devices that we mention as an example of IoT devices?

   - Fridge
   - Television
   - Phone
   - Toilet
   - Thermostat

   Correct! The US mandated the requirement of finding the location of a 911 caller to better find them in the case of an emergency.

3. Which of the following do you need to build your own IoT?

   - ability to act
   - compute platform
   - optimal power
   - low cost
   - modular to add on components

4. What is the name of the device we will be using? Just the first two words as one word without the model number and all lower case.

   dragonboard

5. What cloud platform will be using in Course 3?

   - Amazon Web Services
   - The Cloud
   - Microsoft Azure
   - Qualcomm Cloud
   - Google Cloud Compute

6. What is the Internet of Things?
    - Finding things that have internet and connecting them
    - Connecting items through bluetooth
    - Connecting things to the internet that they would normally not have
    - Using the internet
7. What would be things that normally dont have internet?
    - Thermostat
    - Smartphone
    - Computer
    - Router
8. What company in the lesson tints windows using voltage?
    - That is not possible yet
    - That technology is currently in development
    - Smart glass
    - Switchable
9. How can cars with internet decrease the number of crashes?
    - The car does a self diagnosis and tell the manufacturers what is malfunctioning
    - The car would disable texting while the car is driving
    - The car could drive itself following a route
    - A car with internet cannot decrease the number of crashes
10. What good comes form having the Internet of Things?
    - No good comes from the Internet of Things
    - One could fix the tempature of the thermostat from their couch
    - With enough things in a household with internet plenty of chores would do themselves
    - One could check the tempature of the fridge from the couch
11. What is the method of using massive amounts of information to infer new information in the technology age?
    - Reading
    - Learning
    - Big Data
    - Spying
    - Data collection

12. What is the approximate amount of time in minutes that it takes the brain to react to being full? Hint: Ganz mentions it many times

    5

13. What attribute does Ganz think that Smart Home devices are trying to emphasize?

    - Laziness
    - Sadness
    - Happiness
    - Joy
    - Anger

14. What will be center of the Smart Home?

    - Television
    - Computer
    - Phone
    - Fridge
    - Door

15. Since the cars can not on all the time, how can power limits problem be solved as mentioned in the video?

    - Never on
    - Plugged in to grid
    - Always on
    - Periodic wakes
    - Solar powered