

Which of the following is an input device?

- a. Mouse
- b. Processor
- c. Monitor
- d. Register

Put \_\_\_\_\_

- a. Moves number from register to input
- b. Moves number from input to register
- c. Moves number from register to output
- d. Moves number from register to blackboard

A bit distinguishes between:

- a. 1 and 0
- b. True and false
- c. A and B
- d. None of the above

6 GHz =

- a. 6 million ticks per second
- b. 6 trillion ticks per second
- c. 16 billion ticks per second
- d. 6 billion ticks per second

Which of the following is not an example of cloud storage?

- a. Google drive
- b. MS onedrive
- c. Dropbox
- d. Flash drive

What does DOM stand for?

- a. Document Object Model
- b. Data Object Map
- c. Domain Output Machine
- d. None of the Above

In a DOM, objects have which of the following attributes?

- a) Color
- b) Font
- c) Size
- d) All of the Above

Which of the following allows you to have dynamic changes, such as click a button and update data?

- a) HTML
- b) JavaScript
- c) CSS
- d) None of the Above

In HIMS, what does CMS stand for?

- a) Centers for Medicare and Medicaid Services
- b) Control Management System
- c) Content Management Software
- d) Cluster Matrix Server

Which of the following is true about GUI?

- a) It is an array of pixels
- b) It stands of Graphical User Interface
- c) Its an array of documents
- d) A&B

Which of the following is not part of the “Flow of Health Information”?

- a. Gathering
- b. Recording
- c. Decision Making
- d. Billing
- e. Analyzing

What does HTML stand for?

- a. High Text Made Up Language
- b. Hypertext Mark Up Language
- c. Hypotext Mark Up Letters
- d. Hypertext Mark Up Letters

Which of the following is not a type of programming language?

- a. High-level language
- b. Machine language
- c. Assembly language
- d. All of the above are types of programming languages

What is the term for what HTML elements are represented by?

- e. Tags
- f. Arrows
- g. Joins
- h. Alphas

Which of the following does not describe machine language?

- e. Binary
- f. Removed from the computer when the program is running
- g. Executable
- h. Machine dependent

Object-oriented programming

- i. Can increase program efficiency and software reuse
- j. Is a special kind of high-level language
- k. Combines procedures and data into “objects”
- l. All of the above

Why is each layer in the software stack upgraded periodically?

- a. To accommodate new hardware, software
- b. To block securities vulnerability
- c. Both of these
- d. Neither of these

Which illusion addresses seeing several application programs executed concurrently?

- e. Multi-tasking/ Threading
- f. Virtual Memory
- g. File Systems
- h. Graphical User Interface

When buying software for each layer in the software stack, which one of these does the user NOT have to consider?

- i. Interoperability
- j. Expected Life Time
- k. Internet Speed
- l. Cost

What HTML tag do you use to create a paragraph?

- m. <p>
- n. <t>
- o. <html>
- p. <paragraph>

What does the slash mean in HTML? (Example: </body>)

- q. It is a start tag.
- r. It is an end tag.
- s. It means the sentence has ended and there should be a period there.
- t. It means the paragraph needs to be indented.

Which of these are potential functionalities of EHR? (via 'Benefits and drawbacks of electronic health record systems')

- a. Clinical Decision Support Tools
- b. Computerized Physician Order Entry
- c. Health Information Exchange
- d. All of these

According to the article "Benefits and drawbacks of electronic health record systems," which of these is a potential drawback to EHRs?

- e. High adoption and implementation Costs
- f. Patent for EHRs pending
- g. Misuse of EHR
- h. Employee dissatisfaction with system

Unordered HTML Lists start with which of the following?

- a. <ul>
- b. <ui>
- c. <ol>
- d. <oi>

Which of the following is not part of a modern PC (2015)

- e. Processor
- f. RAM
- g. Hyperdrive
- h. SSD

Which of the following are forms of network connections?

- i. Circuit Switching
- j. Delay Switching
- k. Packet Switching
- l. A & C

What does it mean to be on the Internet?

- m. Have wifi
- n. Have an IP address
- o. Run TCP/IP protocol
- p. B & C
- q. All of the above

Which of the following is the HTML element for Important text?

- r. <imp>
- s. <impt>
- t. <strong>
- u. <emp>

Which of the following is **NOT** a pitfall of using cell phones in healthcare?

- v. Disrupting Clinical Communication
- w. Social Disengagement
- x. Direct Patient Harm
- y. All of the above are **CORRECT**

Web servers:

- a. Listen for incoming connections from clients
- b. Use don't use HTTP protocol
- c. Store and transmit Web pages to clients
- d. A & C
- e. All of the above

How are business drivers associated with the evolution of the web?

- f. They enable transactions
- g. They allow interactivity between networks
- h. Support single browsing devices
- i. A& C

Web clients:

- j. Use HTTP protocol to connect to servers
- k. Typical clients are web browsers
- l. Requests and displays Web pages stored in servers
- m. A & B
- n. All of the above

What is not a part of the anatomy of a URL?

- o. Name of protocol
- p. Domain name of web server
- q. IP address
- r. Pathname of file

What does the application layer do within TCP/IP protocol architecture?

- s. Converts bits to signals and back
- t. Manages logical interface between a machine and its local network
- u. Routes data from source to destination through one or more networks
- v. Provides end-to-end reliable data transfer across multiple networks
- w. Provides communication between applications on separate machines

What does BPS stand for?

- x. Bites per second
- y. Bits per second
- z. Bandwidth per second
- aa. Bits per source

The first step in the LMC instruction set is

- a. GET
- b. LOAD
- c. STORE
- d. PUT

The following are issues with computing integers

- a. Overflow
- b. Truncation
- c. Storage
- d. A and C

Which of the following is an example of removable storage?

- A. Hard drive
- B. Flash drive
- C. RAM
- D. SSD

Bytes are groups of \_\_\_\_ bits

- A. 16
- B. 4
- C. 10
- D. 8

GET:

- a. moves number from input to register
- b. moves number to storage
- c. moves number from register to output
- d. moves number from blackboard to input

Which of the following is not a component of a computer?

- A) Processor B) Motherboard C) Power Supply Unit D) USB drive

Which unit of measurement is used to clock speed for a processor?

- A) Kilometers B) Liters C) Gigahertz D) Miles

Which displays resolution is considered the highest for a monitor?

- A) (720 x 480) B) (720 x 576) C) (1280 x 720) D) (1920 x 1080)

What does RAM stand for?

- A) Random Access Memory B) Randomized Accessory Memory C) Random Access Memoirs  
D) Random Accessory Memory

What type of storage is the fastest?

- A) Hard Drive B) Solid State Drive C) Solid State Hybrid Drives

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- g. Dropbox
- h. Flash drive

Why is having standards important?

- a) Interoperability
- b) Portability
- c) Data exchange
- d) All of the above
- e) None of the above

An ad hoc standard development process is:

- a) Government mandates the adoption
- b) A group of interested people agree on a standard without a formal adoption process
- c) A vendor controls such a large segment of the market that its product becomes the recognized standard or norm
- d) Representatives from various interest groups come together to reach a formal agreement of the standard
- e) None of the above

Which of the following is an advantage of the Agile software development style?

- a) Hard to predict and control outcomes reliability
- b) For well understood problems
- c) May result in systems that are inefficient, unreliable, or hard to maintain
- d) Encourages user involvement
- e) None of the above

A fallacy about software development is:

- a) One of the most common causes of runaway projects is poor estimation
- b) Maintenance typically consumes 40 to 80 percent of software costs
- c) Software needs more methodologies
- d) Requirement errors are the most expensive to fix



Which software development method creates internally in an organization?

- a) Agile
- b) Outsourcing
- c) End-User Development
- d) Waterfall
- e) Open Source

Which of the following is a quick synopsis told in the first person about key uses and needs of a software?

- a) User Story
- b) Scenario
- c) Persona
- d) Short Story
- e) None of the above

Which of the following is **NOT** a US health Care Standard law or organization?

- A. HIPAA
- B. HITECH
- C. IEEE
- D. ONC

Which of the following is **NOT** an example of a standard implemented by a group of key stakeholders in software?

- A. HL7
- B. HIPAA
- C. SQL
- D. DICOM
- E. ANSI

Which of the following is a disadvantage of end-user development?

- A. Inability to re-use results
- B. Customizing software is time-consuming
- C. User is rarely involved or satisfied
- D. Hard to predict or control outcomes reliability

Which of the following is NOT a problem in software development?

- A. 16% of all projects are on time and on budget
- B. over 50% are overbudget
- C. Many projects will fail
- D. Very Few companies are able to develop software

When is a health care provider able to influence an Agile development?

- A. Never
- B. He or she plays little role in influencing Agile development
- C. The provider explains an acceptable functionality in a brief user story
- D. Provider removes the ambiguity and sizes the efforts, but does not need other team members to modify the backlog

From <http://www.ehrscience.com/2013/02/18/from-idea-to-system-a-story-of-architecture-and-design/>

Which of the following is based on the idea of building a system that has the least number of features necessary to make it useful?

- A. End-User Development
- B. Agile
- C. Minimal Viable Product
- D. Packaged Software

From <http://www.ehrscience.com/2013/02/18/from-idea-to-system-a-story-of-architecture-and-design/>

Which of the following is a key ingredient in agile data, to build, test, & repeat an efficient and enduring process?

- A. Waterfall Model
- B. Iteration
- C. Sequence
- D. Big design up front

From <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2890598/pdf/1472-6947-10-30.pdf>

From the Biosense article, which of the following was a reason for tracking patient diagnoses and visit data?

- A. For Public Health organizations to respond to emergencies
- B. For CDC to maintain a central track record of visit frequencies
- C. To create a system comparison for public health use
- D. For groups like the VA and regional CDC offices to submit ED data across the country
- E. All The Above

Which of the following is a data interchange standard that is used for *prescription drugs*?

- A. HL7
- B. DICOM
- C. NCPDP
- D. ANSI ASC X12N

Which of the following is NOT an advantage of outsourcing?

- A. Economies of scale
- B. Flexibility
- C. Predictability
- D. Dependency

Which of the following is NOT a code set required by HIPAA?

- A. ICD-10
- B. CPT
- C. HCPCS
- D. DICOM

Which of the following is one of the problems with big data?

- A. Time
- B. Money
- C. Quality
- D. All of the above

What is the development process called when a vendor controls such a large segment of the market, that its product becomes the recognized norm?

- A. Ad hoc
- B. De facto
- C. Government mandate
- D. Consensus

Found in: <http://www.ehrscience.com/2013/02/18/from-idea-to-system-a-story-of-architecture-and-design/>

\_\_\_\_\_ and use cases are two methods employed to determine what users want to do with their systems.

- A. Questionnaires
- B. User Stories
- C. Surveys
- D. Employee reports

Which is not one of the 3 steps of securing communication?

- A: Secrecy
- B: Authentication
- C: Encryption
- D: Integrity

Public key cryptography works as long as:

- A: the private key is really kept secret
- B: it is hard to compute private key from public key
- C: you get the correct public key from some trusted source
- D: All of the above

Which of the following is not a trusted third party certificate authority (CA) responsible for generating trusted certificates for requesting individual organizations?

- A: Cisco
- B: Verisign
- C: Cybertrust
- D: Entrust

What are some defensive measures an organization can make to prevent cyber-attacks?

- A: Virus/Malware Scanners
- B: Intrusion detection systems
- C: Stay current on security patches
- D: All of the above

What is a user story?

- A: a detailed data-driven description of an imaginary person that focuses on the motivating values, judgment processes, pressures, and tradeoffs of workers
- B: an extremely brief narrative from Agile Development that describes a specific work activity of a single worker and situation
- C: a story with a plot about people and their activities including actions, events and settings
- D: a user's review of a software system after its completed and gone "live"

The typical zero day attack lasts how long on average?

- A: 6 days
- B: 37 days
- C: 104 days
- D: 312 days

Businesses can be infected with ransomware, leading to negative consequences including:

- A: temporary or permanent loss of sensitive or proprietary information
- B: disruption to regular operations
- C: potential harm to an organization's reputation
- D: All of the above

Which of the following is not an example of access control?

- a. Login Procedures
- b. Smart cards
- c. Fingerprint recognition
- d. Credit card number

Which of the following is not an example of a defensive measure in the context of digital security?

- e. Virus scanners and removers
- f. Firewalls
- g. Intrusion Detection Systems
- h. Video cameras

What are the three steps in securing communications?

- i. Secrecy, authentication, integrity
- j. Secrecy, firewalls, integrity
- k. Secrecy, authentication, passwords
- l. Cryptography, authentication, firewalls

What are the two steps for securing access to resources?

- m. Authenticate, password
- n. Authenticate, authorize
- o. Password, authorize
- p. Integrity, authorize

What is the definition of a user story in the context of software development and product management?

- q. One or more sentences in everyday language of the end user or user of a system that captures what the user needs to do as part of their job.
- r. A patient story describing difficulties using a patient portal.
- s. A provider's couple sentences on an issue they are having with a system in plain language and what they need to do their job.
- t. A couple of sentences describing the basic functions of a system and how it helps the user develop the software or manage it.

Who is not covered by the HIPPA security rule?

- a. Health plans
- b. Health care providers
- c. Health care clearinghouses
- d. Pharmaceuticals

All breaches of \_\_\_\_\_ records or more must be reported.

- e. 400
- f. 500
- g. 600
- h. 700

Defensive measures include? (take away)

- a) Firewalls
- b) Intrusion Detection Systems
- c) Virus/Malware Scanners
- d) All of the above

Which of the following is the not a characteristic of a firewall? (take away)

- a) Data packet screening
- b) Conceals network structure
- c) “Burns” or deletes suspicious users
- d) Allows access to valid users

Intrusion Detection Systems include (take away)

- a) Blocking procedures and Alarms
- b) Pattern recognition and Anomaly detection
- c) Passcode request and User lockouts
- d) Data screening and Confirmation Requests

The general HIPAA security rules includes? (reading log)

- a) Protect against reasonably anticipated, impermissible uses or disclosures
- b) Patient Rights
- c) Ensure compliance by their workforce
- d) A and b only
- e) A and c only
- f) None of the above

PKI stands for? (take away)

- a) Public Keynote Itinerary
- b) Private Keynote Information
- c) Personal Key Intelligence
- d) Public Key Information

Public Key used for encryption is known to? (take away)

- a) The Owner
- b) Everyone
- c) The Company
- d) A and c only

Which of the following is not a part of the KDD (Knowledge Discovery and Data Mining) process?

- A. Data cleaning & integration
- B. Data Tracing
- C. Feature Selection
- D. Validation / Evaluation
- E. Analysis / Data mining
- F. Action

Data Science:

- a) Involves collecting and refining information from many sources
- b) Helps in analyzing and presenting the information in useful ways
- c) Allows people to make better business decisions
- d) A & B
- e) A, B, and C
- f) None of the above

What is data mining?

- A. Using a combination of artificial intelligence, machine learning, and statistical analysis to analyze data
- B. Discovering useful patterns that are “hidden”
- C. Interpreting SQL queries to identify information from tables
- D. A and B
- E. A and C
- F. All of the above

Which of the following is/are business use(s) of data mining?

- A. Classification
- B. Estimation
- C. Prediction
- D. Affinity Grouping
- E. Description
- F. All of the Above

Which of the following is not one of the properties of big data?

- A. Validation
- B. Volume
- C. Velocity
- D. Variety
- E. Veracity

Which of the following SQL conditional operators will give you results of “searching for a pattern, approximately same as ...”?

- A. like
- B. exactly
- C. same
- D. equal
- E. in

Which of the following is characteristics of decision support systems?

- A. Day to day transactions
- B. Containing up to date data
- C. Systems like EMR
- D. Supporting strategic decision making
- E. An inventory order

Which of the following is a characteristic of an operational system?

- A. Supporting strategic decision making
- B. Containing historical data
- C. Supporting day to day transactions
- D. Population health data systems
- E. Types of management support

What does KDD stand for?

- A. Knowledgeable Data Defining
- B. Knowledge Data and Discovery
- C. Knowledge Data Science and Decision Making
- D. Knowledge Data and Discovery
- E. Knowledge Discovery and Data mining



Which one of the following is a sample application of data mining?

- A. Direct Marketing
- B. Market Segmentation
- C. Customer Churn
- D. Market Basis Analysis
- E. All of the above

Which of the following represents what the Select Where clause does in SQL?

- A. Specifies an order in which to return the rows
- B. Groups rows sharing a property so that an aggregate function can be applied
- C. Specifies which rows to receive
- D. Provides an alias which can be used to temporarily rename tables or columns
- E. Selects among groups defined by the 'group by'

Which of the following represents what the Select order by clause does in SQL?

- A. Specifies an order in which to return the rows
- B. Groups rows sharing a property so that an aggregate function can be applied
- C. Specifies which rows to receive
- D. Provides an alias which can be used to temporarily rename tables or columns
- E. Selects among groups defined by the 'group by'

What are the three basic objectives of KDD?

- A. Clean, Merge, Operate
- B. Integrate, Merge, Reprocess
- C. Clean, Merge, Reprocess
- D. Integrate, Merge, Operate
- E. Clean, Analyze , Reprocess

What is NOT a characteristic that is important for data science team members?

- A. Reliability
- B. Technical Expertise
- C. Curiosity
- D. Storytelling
- E. All the above

What is NOT a sample of application of data mining?

- A. Market Segmentation
- B. Insurance Claims Analysis
- C. Financial Analysis
- D. Market Basket Analysis
- E. Direct Marketing

Which of the following is not an application in health for data mining?

- A. Manage population health
- B. Clinical decision support
- C. Cohort identification for clinical trials
- D. Medical fraud detection
- E. Regulating vital status

What is the SQL operator for “To specify multiple possible values for a column”

- A. SELECT
- B. AS
- C. IN
- D. LIKE
- E. BETWEEN

Which one of these represent relationships among tables in a database?

- A. One to many
- B. Many to many
- C. One to One
- D. One to multiple
- E. All except D

Which of the follow does NOT stand for the SMART goals process acronym?

- A. S-Specialize
- B. M- Measureable
- C. A-Attainable
- D. Relevant
- E. T-Time bound

## True/False

Computer screen divided into small dots (pixels)

Flexibility and compatibility should not be considered when buying a new PC or server for your organization.

The brain of a computer, a processor is the logic circuitry that responds to and processes the basic instructions that drive a computer

Health care providers who demonstrate meaningful use of certified electronic health records can qualify for Medicaid and Medicare incentive payments.

There are two types of software-System software and Application software

According to the article, “The effect of information technology investment on firm-level performance in the healthcare industry”, information technology can improve healthcare quality by facilitating clinical decision making, reducing the cognitive burden of practitioners, and automating patient safety practices.

Computers operate by composing different layers of software

CSS is used for the actions (dynamic changes) on a web page.

“WAN” stands for Wide Area Networks.

Patients do not have the right to sole possession or the destruction of their original medical records.

The Semantic Web is less interactive and human-friendly than Web 2.0.

Business drivers allow interactivity between the browser and server.

Cookies are not a method for identifying web users and delivering customized web sites and advertisements.

The Semantic Web’s infrastructure is not well-established for expressing precise and interpretable information.

Analog data can take on any value within a continuous range.

Digital data can’t take on a finite set of discrete values

LANs stands for Local Area Networks and the typical technology is public switched and leased lines.

Register is housed in the processor

The i7 processor is dated and not used in today's computers

RAM is the place in a computer where the operating system, application programs, and data in current use are kept so that they can be quickly reached by the computer's processor.

An operating system is the program that manages all the other programs in a computer

An Intel i5 processor is faster than an Intel Pentium processor.

A 256 GB SSD is faster than a 500GB hard drive.

USB 3.0 is not the latest type of USB port.

Average battery of a Apple macbook laptop is 24 hours.

Computer screen divided into small dots (pixels)

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The brain of a computer, a processor is the logic circuitry that responds to and processes the basic instructions that drive a computer

Health care providers who demonstrate meaningful use of certified electronic health records can qualify for Medicaid and Medicare incentive payments.

The most important factor in software development is the quality of the programmers.

From <http://www.ehrscience.com/2013/02/18/from-idea-to-system-a-story-of-architecture-and-design/> : A system's architecture is a low level view of its key components and their interactions.

From <http://www.ehrscience.com/2013/02/18/from-idea-to-system-a-story-of-architecture-and-design/>: Two of the most important design concepts are coupling and cohesion.

SQL is the only vendor used to process data on rows and columns.

Maintenance typically consumes 40 to 80 percent of software costs.

Found in: [A] Tokars JI, English R, McMurray P, Rhodes B. (2010) Summary of data reported to CDC's national automated biosurveillance system, 2008. BMC Med Inform Decis Mak.

25;10:30.: Biosense is a system that is intended to improve the nation's capabilities for conducting real-time biosurveillance, and enabling health situational awareness through access to existing data from healthcare organizations across the country.

Found in: <http://www.ehrscience.com/2013/02/18/from-idea-to-system-a-story-of-architecture-and-design/> : The *waterfall method* assumes that each step happens in sequence, which in turn assumes that a system can be fully specified with all requirements known before coding starts.

Stolen health credentials go for more on the black market than credit card numbers.

Crypto ransomware, a malware variant that encrypts files, is spread through phishing emails as well as social media platforms, such as web-based instant messaging applications.

The number of security breaches are going down due to improvements in software and the addition of defensive measures such as firewalls and virus scanners.

Ransomware is a form of software that locks computer files until you pay a fee.

Even if HIPAA security rules are followed, information can still be pirated held for ransom.  
(reading log)

A zero-day attack are those that exploit software defects before they are publicly known.  
(reading log)

The two steps of securing access to resources including Authentication and Approval. (take away slides)

Two types of support systems include operational and decision support systems. Operational support systems support strategic decision making while decision support systems support day to day transactions.

Operational support systems support day to day transactions while decision support systems support strategic decision making.

The mean is the 50th percentile number/data point.

Relational databases organizes data in tables or relations.

A table is made up of rows and columns.

Rows are called records and columns are called fields or attributes.

The AMPLab integrating three key resources are algorithms, machines, and people

The introduction of new technology such as an EHR system can create new errors and slower initial entry time.

## Short Answer

CPU stands for:

What is the term used to describe computers operated by composing different layers of software?

What type of software includes operating systems, programming languages, and database systems?

What is the standard language for creating web pages?

What is a problem with the current Web model?

What does DNS stand for?

Who controls the internet?

There are two types of graphics cards, integrated and \_\_\_\_\_?

CPU stands for:

\_\_\_\_\_ is a messaging standard used to transfer clinical data from between software applications, using an OSI model

One of the most common causes of runaway projects is poor \_\_\_\_\_.

are put up around a network for more security and only allow traffic from legitimate users.

Why are stolen health credentials selling for 10 or even 20 times the value of a credit card number?

Always stay current on software patches to prevent a \_\_\_\_\_. (take away)

\_\_\_\_\_ is the new raw material of business: an economic input almost on par with capital and labor.

\_\_\_\_\_ systems support day to day transactions and contain up to date data.

For SQL, every statement yields a table of \_\_\_\_\_ as output.

## SQL

**Tables 1-3:**

ID_#	Iname	fname	Position	Dept_#
101	BEECHAM	CLAIRE	CEO	1
102	DUNCAN	GEILLIS	Manager	2
103	FITZGIBBONS	MURTAGH	Sales	3
104	FRASER	JAMES	Admin	1
105	HAWKINS	MARY	Tech	4
106	MACKENSIE	DOUGAL	Engineer	3
107	MHOR	ANGUS	Tech	5
108	RANDALL	JONATHAN	Engineer	3
109	ROHAN	LOUISE	Engineer	5
1010	STUART	CHARLES	Tech	2

Table 1: Employees

Dept_#	dname
1	Administration
2	Accounting
3	Sales
4	Operations
5	IT

Table 2: Departments

ID_#	Salary	From_Date	To_Date
101	\$180,000	6/16/1986	8/5/2000
102	\$60,000	8/2/1978	6/4/1997
103	\$25,000	10/22/1986	5/10/1980
104	\$75,000	4/19/1998	9/24/2015
105	\$52,000	4/22/1997	2/20/2016
106	\$27,000	12/7/1985	4/25/1993
107	\$80,000	10/21/1977	3/6/1995
108	\$60,000	2/27/1972	4/8/1995
109	\$100,000	12/12/1975	12/15/1985
1010	\$75,000	2/21/1984	1/25/1997

Table 3: Salaries

Write a query that displays the first and last names of all employees in department 3

Write a query that displays the rows from the Employees table, organized by their position

Write a query that displays employee ID numbers, along with first and last names, and each employee's salary (need to join tables)

Write a query that displays the same information from number 3 but order the rows by salary, starting with the largest salary

Write a query that displays the start and end salary period of the employee whose ID # is 104 or 109.

Write a query that displays the first name, last name and position of the employee whose ID # is 105.

Write a query that displays the first name, last name and positions of all the employees in the Administration department.

Write a query that displays ID #, first and last names and starting salary dates of every employee in order of earliest starting date.



Write a query that displays the names of all employees who are Engineers.

Write a query that displays Charles Stuart's department number.

Write a query that displays an alphabetical list (by last name) of all employees who are Techs.

Write a query that displays an alphabetical list (by first name) of all Engineers.

Write a query that displays the rows from the Department table, organized in alphabetical order.

Write a query that displays the rows from the Salaries table, organized by newest start date.

Write a query that displays the last name and position of the employees from department number 1 (inner-join used)

Write a query that displays the first name, last name, and salary of the employee whose ID number is 104

SQL- Short Answer

How many employees are there in department 3?

How many engineers are there?

How many employees have a salary over \$70,000?

How many employees have a salary greater than \$90,000?

What are the names of the employees in the administration department?

What is Jonathan Randall's salary?

What is the first and last name of the engineer who works in the IT department?

How many employees have a salary less than or equal to \$60,000?

How many employees are there in department 5?

What is the first and last name of the CEO?

What is the department number of the Operations department?

What is the last date of the Salary Period?

## Patients

PatientID	First_Name	Last_Name	DOB	Age	Sex	PCP	Diagnosis
1	Bob	Adams	10/05/1982	34	M	Stevens	Diabetes
2	Billy	John	02/19/1964	53	M	Stevens	Back pain
3	Brad	James	06/02/1978	39	M	Yang	Back pain
4	Joe	Pitt	08/05/1990	26	M	Yang	Crohn's Disease
5	John	Jay	10/09/1976	41	M	Grey	AIDS
6	Sally	Smith	11/02/1981	36	F	Grey	IBS
7	Sue	Blue	09/20/1949	68	F	Shepherd	IBS
8	Shirley	Sue	05/07/1983	34	F	Shepherd	Diabetes
9	Shaqueta	Fire	07/14/1979	38	F	Gupta	Diabetes
10	Bruce	Wayne	10/31/1953	63	M	Gupta	AIDS

## Visits

PatientID	Visit_Date	Diagnosis	Discharge_Date	Visit_Cost	Insurance_Reimbursement
1	1/1/2017	Diabetes	1/1/2017	\$200.00	\$160.00
2	3/15/2016	Back pain	3/15/2016	\$80.00	\$64.00
3	3/15/2016	Back pain	3/15/2016	\$80.00	\$64.00
4	4/12/2016	Crohn's Disease	4/12/2016	\$300.00	\$240.00
5	2/15/2016	AIDS	2/15/2016	\$290.00	\$232.00
6	10/15/2017	IBS	10/16/2017	\$800.00	\$640.00
4	2/25/2017	Crohn's Disease	2/25/2017	\$300.00	\$240.00

## Labs

PatientID	Test_Type	Result	Cost	Insurance_Reimbursement
1	Diabetes Test	Negative	\$100.00	\$90.00
2	Allergy Test	Positive-Peanut Butter	\$180.00	\$162.00
3	Strep Test	Negative	\$10.00	\$9.00
4	Growth Hormone Test	Normal	\$300.00	\$270.00
4	Strep Test	Positive	\$10.00	\$9.00
4	Strep Test	Positive	\$10.00	\$9.00
5	Strep Test	Positive	\$10.00	\$9.00
8	Strep Test	Positive	\$10.00	\$9.00
9	Strep Test	Positive	\$10.00	\$9.00
10	Strep Test	Positive	\$10.00	\$9.00

- Write the SQL statement to find number of patients with back pain?
- Write the SQL statement to find the number of male patients under the "Patients" table at Chronic Care Clinic?
- Write the SQL statement to find the number of female patients who saw Dr. Shepard? Write the SQL statement to find the number of male patients with back pain?
- Write the SQL query to find the number of patients who got a growth hormone test.

- e. Write the SQL query to find the number of patients with a discharge date of 3/15/2016.
  
- f. Write the SQL query to find the number of Dr. Stevens' patients who have diabetes.
  
- g. Write the SQL query to find the number of patients with IBS who are female.
  
- h. Write the SQL query to find the number of patients with a visit cost of \$240.00.
  
- i. Write the SQL query to find the reimbursement for a strep test.
  
- j. Write the SQL query to find the number of positive strep tests.
  
- k. Write the SQL query to find the last names of the patients with a positive strep test result.
  
- l. Write the SQL query to find the total cost of all lab tests.

- m. Write the SQL query that would find the number of visits that cost less than \$100.
- n. Write the SQL query that would bring up the last name of all male patients.
- o. Write the SQL query that would find how many patients Dr. Yang sees.

Short Answers: SQL

1. How many patients saw Dr. Gupta?
2. How many patients have IBS?
3. How many patients did Dr. Gupta treat for diabetes?
4. How many patients did Dr. Yang have?
5. How many patients had a positive strep test result?
6. Which patients had insurance reimbursements greater than \$9.00 in lab testing?
7. How many patients are between the ages of 30 and 40?
8. What is patient 5's name?
9. How many patients came in for a visit related to Crohn's disease in 2017?
10. How many patients are older than 50?
11. How many patients have back pain?
12. How many strep tests has the clinic done?