

Use for rough work

Q. No. 2 Part (i)

Purposes of data Science:-

The following are the two main Purposes of data Science:-

(i) Determination of meaningful insights:-

It involves converting noisey data into meaningful information or data; that can be used to determine meaningful insights; which ultimately leads to business-informed decisions in our daily-life etc.

(ii) Making business informed decisions:-

after converting the noisey data into meaningful information; that meaningful information is used to make business informed decisions etc.

Q. No. 2 Part (ii)

Understanding real-world business Problems:- Understanding the real-world business Problems is important significantly in data science because data science is an interdisciplinary field that combines mathematics, statistics and computer-science in order to convert noisey data into meaningful information that leads to the making of business informed decisions. It helps data science to **delt with modern day business-Problems effeciantly** and in an effective manner. so, that in order to make business informed decisions etc.

Q. No. 2 Part (iii)

Searching algorithms:- Searching algorithms like **Linear Search and binary Search** are used for finding a number, or any relevant information from a list much effectively and in a reasonable amount of time. Linear search search's that element from top to bottom; until the finding element is found but it takes much time than the binary search. binary search divides the list into two halves; which makes it benefical for long datasets. **For example:- Linear and binary search's;** finding any element in a list etc.

Q. No. 2 Part (iv)

Technologies Used in Front-end:-

(i) Front-end developers works on the attractiveness of the website and for this purpose **HTML, CSS and JavaScript** Programming languages are used for achieving that Purpose.

(ii) Front-end development is also known as **"Clint Side Development"** because it is development and designted by the clients and it involves the good loking and attractiveness of the website. which is performed by the Front-end developers only.

Q. No. 2 Part (v)

Internet of things (IoT):- IoT is an infrastructure that is consists of network of servers that Provides connectivity b/w multiple devices and facilitates man to machine and machine to machine interactions. It collects information from **sensors and devices**, stores in the cloud storage and Processes it by using technologies like data analitics and machine learning algorithms etc. It has 5 essential components:-

(i) Sensors / Devices (ii) User interface
(iii) Cloud (iv) Connectivity
(v) Data Processing

Q. No. 2 Part (vi)

Scope of data Science:- Data Science converts noisey data into meaningful data in order to make business informed decisions. Data Science has a large scope in today's world and is continuously growing. The following is the scope of data science in 2 fields:-

(i) **Healthcare:-** Data Science plays crucial role in medical imagening and X-rays; for the purpose of desease Preventation etc.

(ii) **Sports:-** In a cricket match; if we wants to know about the two teams win propability based on their previous performances; data Science can help us.

Q. No. 2 Part (vii)

Necassary Conditions for binary Search:-

The following are the two necassary conditions for the binary Search:-

(i) Binary Search only works on the only sorted data-sets. It means that the binary search will only proceed on those datasets that contains a sorted list of the elements.

(ii) Binary Search divides the list into two halves and then selects or search's that element from the list. For this process binary search only requires discrete data into a sorted lists for searching etc.

Q. No. 2 Part (viii)

Importance of abstractions:-

The following are the two reasons that abstraction is important in the Program development:-

(i) Abstraction helps us to remove unnessary information from the data and helps us to only focus on the relevant and important information that leads to better program development.

(ii) Abstraction hides the unnecssary and useless information from the data; leading to better understanding of the programs and it's development.

Q. No. 2 Part (ix)

Types of data visulizations:-

The following are the names of the two type of data visualizations:-

- Quantitative Visualization
- Categorical Visualization
- Temporal visualization

and many others etc.

Q. No. 2 Part (x)

Importance of AI applications:-

AI (artifical intelligence) applications are important in our daily-life because they offers advance features and 24/7 hours services. The following are the two important uses of AI based applications:-

(i) **Robotics:-** are widely used everywhere in today's modern world like robots in space exploration, Roomba robots in cleaning purposes have made our lifes easier.

(ii) **Self-driving Cars:-** improves our driving experiances with advanced real-time features and Prevents traffic jams + accidents.

Q. No. 2 Part (xi)

Importance of information Security:-

The following are the two reasons for the importance of information security online:-

(i) **Preventing Cybercrimes:-** by ensuring and improving the security of personal information online helps peoples to be completely protected and secure from cyber-crimes like identity-theft, Phishing etc.

(ii) **Being Safe/secure with data Protection:-** Information security online Protects Personal data and information from spams, spyware and other malicious activities. It Prevents the leakage of Personal information online etc.

Q. No. 3 (Page 1)

Importance of data visualizations:-

Data Visualization refers to a way of representing numerical data into the forms of Pie charts, Graphs and in a table form. Data visualization makes Complex data into an organizable data that helps to understand trends and patterns from the data. It makes the complex data into **an easier to understand; detect errors; in-depth analysis and helps extract meaningful information from the data.**

The following are the 5 points that helps the analysts to understand patterns, trends, and relationships in the data through data visualizations:-

(i) **Easy to understand:-** Data visualization converts complex and unparallel data into an organizable and meaningful data; that helps the analysts to easily understand that complex data into an organizable, efficent and in an easy way.

(ii) **Detecting errors:-** By converting complex data into an organizable, visual way helps the analysts to easily understand that data. which; ultimately helps the analyst to work on the relevant and important information and removing unnecessary information leds to the way of detecting and removing errors

Q. No. 3 (Page 2)

from the data and focusing on just relevant and important information.

(iii) **Quick decision making:-** By understanding the relevant and important information will help the analysts in quick decision making and this automatically saves a lots of time and can helps in understanding trends and patterns from the data.

(iv) **Exploring business insights:-** By working on the relevant and important information the analyst will be able to convert that data into meaningful information and this will automatically helps the analysts to make business informed decisions.

(v) **Easier understanding of trends and Patterns:-** After that the analyst will take help from the data visualization that has maken complex data easier to understand; will help the analyst to better understand trends and patterns from the visualized data and make business informed decisions etc.

⇒ The above all the 5 points will help the analyst to understand trends and patterns from the data by getting an essential benefit from data visualization etc.

Q. No. 4 (Page 1)

⇒ **Software methods to Protect devices:-** The following are the five Software methods that are used to Protect devices:-

(i) Fire walls and antivirus Software:- The most common and simple method or a simple Software method to Protect the Systems and devices from Cyberattacks or cybercrimes is to by downloading Firewalls Protection or by antivirus softwares down loading; we can easily prevent the viruses from effecting devices. Firewalls and antivirus softwares detects the virus and cyber-attacks and completely prevents them.

(ii) Keep your System updated:-(Software) Another way to Protect your Software and devices from cyberattacks or crimes is to always keep your **System Software updated/up-to-date;** in order to be Protected from cyberattacks or viruses. By; ensuring your System Software to be remained always Protected or Secure; one should always keep the System-Software updated or in the existing version.

(iii) Use Strong and Unique Passwords:- We Should always use Strong and unique Passwords typically; 2FA (≥ two-factor authentication) for better Security from the cyber-threats etc.

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(iv) Suggest Privacy-settings:-

we shouldn't have to share our personal information online with anyone and should always suggest privacy seetings with strong and unique passwords in order to remain safe and secure during cyber threats etc.

(v) Keep your Softwares up-to-date with the Newest version selection:-

By updating the system-software towards the newest or updated version; one could be easily protected their devices from any-type of cyber attacks or cyber-threats. Keeping the system software secure and up-to-date version could easily protect the devices from malicious software attacks etc.

⇒ **Conclusion:-** By ensuring all the above privacy and software methods one could easily protect their devices.

Q. No. 5 (Page 1)

Internet of things (IOT):-

Internet of things (IOT) refers to the network of servers that Provides connectivity between different devices and facilitates man to machine and machine to machine interactions. **IOT works** in a way that it collects information and data from devices and sensors; stores that data and information and data in the cloud and Process that stored data by using techniques like **data analytics and machine learning algorithms etc.**

⇒**Components of IOT:-**

(i) Sensors / Devices (iii) User interface
(ii) Cloud
(iii) Connectivity
(iv) Data Processing

The following is the role of Sensors; Connectivity and data Processing in the working of IOT:-

⇒**Role of sensors:-** Sensors Plays a crucial role in the working of Internet of things (IOT). The sensors/devices collects data and information from different places. That collected information is then stored in the cloud and after that by user interface, connectivity it moves towards its data processing through different advanced technologies.

Q. No. 5 (Page 2)

⇒ **Role of Connectivity:-** The main role of connectivity in the internet of things (IOT) is that it provides digital connectivity between users interface and sensors/ devices that is a crucial ~~For~~ process in the collection of data and information in the complete functionality of the internt of things etc.

⇒ **Role of data Processing:-** The main and key role of data processing in the overall functionality is to process the collected data and information using advanced technologies and techniques like **data analytics and machine learning algorithms etc.**

→ The above all components of internet of things works together in the working and functionality of the internet of things (IOT).

Q. No. 6 (Page 1)

A Person who wants to start an online tutoring service. The following is a short business pitch highlightening the Problem, solution and target customers.

Business Pitch:- My online tutoring service Provides different advanced features for learning including online test series, with complete-course complition and with advanced learning teachers that are hired from advanced learning Platforms from the world. Few of the main and advanced features that only advanced online tutoring services Provide are been Provided by our tutoring services. Our tutoring services Provides free tutoring services to mentally distrubed or orphans. Our tutoring online service is not only Provides services but "we live a life as a complete family."

Target Customers:- Students from fbise boards + with also college students.

Online-Problems:- Many peoples didn't takes classes online due to network issues and inedugate platform-services.

Solutions:- Our online tutoring service is highly flexible with high-effeciency and super-speed network connection that is best for online tutoring and in a reasonable amount that you want to gave.

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⇒ Our online tutoring Provides the following Salient and advanced features that includes:-

- Daily-basis tests
- Full course compiletion
- At high-speed network signals
- Solves last 5 years paper before Final paper + with Grand Test on every weakenends.

Goals:-

(i) Today Learner ; tommorrow's earner

(ii) Today's reader ; tommorrow's Leader.

(iii) our tution; develops toppers on yearly basis in every exam of student's.