**DAILY ASSESSMENT FORMAT**

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| **Date:** | **16-June-2020** | **Name:** | **Raziya Banu** |
| **Course:** | **Introduction to Cyber Security** | **USN:** | **4AL16EC058** |
| **Topic:** | **What is cyber security and what is the motivation behind it?** | **Semester & Section:** | **8th sem & ‘B’ section** |
| **Github Repository:** |  |  |  |

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| **FORENOON SESSION DETAILS** |
| **Image of session** |
| **Report –**  In my first session today I have studied about - What is cyber security and what is the motivation behind it?  Blockchain technology is a decentralised distributed ledger system where you can put any digital asset into the blockchain, regardless of industry. It uses a time-stamped series of immutable records of information managed by a cluster of computers. Different transactions are tracked through these records, separated by **blocks,**and joined by cryptographic **chains.**Data is not owned by a single computer or entity, but by multiple users within the system.  Once confirmed, data that has been encoded cannot be altered. They become permanent blocks added to a chain of other validated blocks. Initially devised for cryptocurrencies, the digital community is now seeing the enormous potential of blockchain technology in cybersecurity, as it can be used to prevent cyber attacks, data breaches, identity thefts, or malicious transactions, keeping data private and secure.   * **lockchain has a democratised network and has no central authority.** It is public domain, so there can be no one or no group that can come in to manipulate information within the blockchain system for any malicious intent. * **The blockchain is a decentralised system NOT owned by one entity.**Data in the blockchain system can be cryptographically stored. * **Whatever gets stored in a blockchain is immutable**, preventing anyone from tampering or manipulating information. With blockchain, it is possible, for example, to hold a completely transparent election with immediate results. People can vote at their homes, and the results tallied right away. * **The blockchain is transparent** – Whatever gets built and stored in the blockchain is openly accessible. The data stored inside can also be tracked, holding a higher standard of accountability for those using the system.  How can blockchain technology contribute to cybersecurity?  * ***Protected Edge Computing with Authentication***   As more and more real-time, on-demand data need to be accessed and distributed, there’s also a need for edge computing and fog computing devices and storage. This allows data to be processed and stored closer to the source and consumers. Cloud computing is still being used, of course, primarily to archive data previously processed through edge computing devices. Blockchain is providing a solution to secure IoT and industrial IoT by more rigid authentication, improved data attribution and flow, and updated record management system.   * ***Advanced Confidentiality and Data Integrity***   Because it was initially intended to be publicly-accessed, blockchain was made without access controls or restrictions. Today, there are private blockchain systems that various industries are using to ensure data confidentiality and secure access control. The complete encryption of the blockchain makes sure that data is not accessible to external parties, whether in part or whole, particularly while data is being transmitted.   * ***Secured Private Messaging***   Companies hope to communicate through more secure platforms using the blockchain technology that can be impenetrable to malicious attacks. Whether in personal, corporate or highly-classified communication, consumers can be secured with the confidentiality of such conversations without fear of cyberattacks. It can handle PKI better than encrypted apps; that is why several blockchain private messaging apps are being developed for public consumption soon.   * ***Improved PKI***   People are more cautious to keep their [computer and online credentials safe and secure](https://www.softvire.co.nz/7-ways-to-keep-your-computer-and-online-credentials-safe-and-secure/). And blockchain technology can help in that regard. Public Key Infrastructure (PKI) rely on third-party certificate authorities to keep messaging apps, emails, websites secure. These certificate authorities that issue, revoke or store key pairs are usually a target for hackers using bogus identities trying to access communication that is encrypted. When these keys are encoded on a blockchain, it minimises false key generation or identity theft as identities of legitimate account holders are already verified on the app, and any intrusion, deception or identity theft can be identified right away.   * ***Intact Domain Name System (DNS)***   A blockchain approach to storing Domain Name Systems (DNS) heightens security comprehensively as it removes that one, single, compromisable target. It thwarts the malicious activities of hackers who can bring down DNS service providers like Twitter, Paypal and the like.   * ***Diminished DDoS attacks***   In a distributed denial-of-service (DDoS) attack, a target, usually, a server, is attacked by multiple compromised computer systems to deny it of services leading to slowdowns, and eventual overloading or crashing of the system. If you integrate blockchain into the security system, the target computer, server or network will now be part of a decentralised system of machines which can protect against such attacks.  We can [develop and adopt multiple measures for security](https://www.blockchain-council.org/blockchain/the-future-of-cyber-security-blockchain-technology/), and yet threats develop and adapt accordingly. However, with blockchain, we have a vast scope of ensuring data is safe.   * ***Internet of Things (IoT)***   Smart systems continue to be developed towards the future implementation of smart cities and societies in the future, and the Internet of Things (IoT) is in the middle of all this action. From your coffee maker to AI-powered robots in aid of humans, IoT will have its mark everywhere. As of date, cybercriminals continue to find ways to attack these IoT smart devices. Blockchain technology’s immutability will serve well if incorporated into the IoT’s defense systems.  Blockchain technology, with its decentralised architecture and distributed ledger, will provide both control and security for remote IoT devices. Smart contracts, which can provide validation for transactions in a blockchain environment, may be used to manage IoT activities and keep devices secure from hackers. |

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| **Date:** | **16-June-2020** | **Name:** | **Raziya Banu** | |
| **Course:** | **Udemy** | **USN:** | **4AL16EC058** | |
| **Topic:** | **Lambda expressions in Java 8** | **Semester & Section:** | **8th sem & ‘B’ section** | |
| **AFTERNOON SESSION DETAILS** | | | |
| **Image of session** | | | |
| **Lambda Expressions in Java 8** Lambda expressions basically express instances of [functional interfaces](https://www.geeksforgeeks.org/functional-interfaces-java/) (An interface with single abstract method is called functional interface. An example is java.lang.Runnable). lambda expressions implement the only abstract function and therefore implement functional interfaces  lambda expressions are added in Java 8 and provide below functionalities.   * Enable to treat functionality as a method argument, or code as data. * A function that can be created without belonging to any class. * A lambda expression can be passed around as if it was an object and executed on demand.   filter\_none  edit  play\_arrow  brightness\_4   |  | | --- | | // Java program to demonstrate lambda expressions  // to implement a user defined functional interface.    // A sample functional interface (An interface with  // single abstract method  interface FuncInterface  {      // An abstract function      void abstractFun(int x);        // A non-abstract (or default) function      default void normalFun()      {         System.out.println("Hello");      }  }    class Test  {      public static void main(String args[])      {          // lambda expression to implement above          // functional interface. This interface          // by default implements abstractFun()          FuncInterface fobj = (int x)->System.out.println(2\*x);            // This calls above lambda expression and prints 10.          fobj.abstractFun(5);      }  } |   Output:    10  [lambda expression](https://media.geeksforgeeks.org/wp-content/uploads/lambda-expression.jpg) **Syntax:**  lambda operator -> body  where lambda operator can be:   * **Zero parameter:**   () -> System.out.println("Zero parameter lambda");   * **One parameter:**–   (p) -> System.out.println("One parameter: " + p);  It is not mandatory to use parentheses, if the type of that variable can be inferred from the context   * **Multiple parameters :**   (p1, p2) -> System.out.println("Multiple parameters: " + p1 + ", " + p2);  Please note: Lambda expressions are just like functions and they accept parameters just like functions.  filter\_none  edit  play\_arrow  brightness\_4   |  | | --- | | // A Java program to demonstrate simple lambda expressions  import java.util.ArrayList;  class Test  {      public static void main(String args[])      {          // Creating an ArrayList with elements          // {1, 2, 3, 4}          ArrayList<Integer> arrL = new ArrayList<Integer>();          arrL.add(1);          arrL.add(2);          arrL.add(3);          arrL.add(4);            // Using lambda expression to print all elements          // of arrL          arrL.forEach(n -> System.out.println(n));            // Using lambda expression to print even elements          // of arrL          arrL.forEach(n -> { if (n%2 == 0) System.out.println(n); });      }  } |   Output :  1  2  3  4  2  4 | | | |