Network Programming
Task:2

1-What are unicast and broadcast? What are the differences between unicast, multicast, and broadcast?

The Solution

Unicast: Traffic, many streams of IP packets that move across networks flow from a single point, such as a website server, to a single endpoint such as a client PC. This is the most common form of information transference on networks.

Broadcasting: Broadcasting is a transmission type in which the data traffic flows from a single source to all the devices on the network. It sends the information to every device at once. The same data is received by everyone, making it efficient for wide-spreading the message with all nodes. Broadcasting is an IPv4 specific data transmission type

the differences between unicast, multicast, and broadcast as the followings:

Unicast:

1-There is only one receiver and one sender.

2 Unicast information transfer is helpful for transferring data from a single client to all the recipients over the same network

3- It is a one-to-one type of data transfer

4- It is very helpful when a single sender transmits data to a single recipient.

Broadcast:

1- There are multiple receivers and one sender

2- Broadcast data transfer occurs when one sender transmits data to multiple recipients at any given time.

3- it is a one-to many type of data transfer

4- Broadcasting is mainly helpful for audio and video distribution by television networks

Multicast:

1- There are multiple receivers and multiple senders

2-Multiple senders and recipients participate in the process of data transfer in Multicasting.

3- It is a many-to many type of data transfer

4- These are helpful in the stock exchange, multimedia delivery

2- What are java Generics and wildcards?

The solution

java Generics: is a set of related methods or a set of similar types. Generics allow types Integer, String, or even user-defined types to be passed as a parameter to classes, methods, or interfaces. Generics are mostly used by classes like HashSet or HashMap.

Wildcards: is known as the wildcard in generic programming . It represents an unknown type. The wildcard can be used in a variety of situations such as the type of a parameter, field, or local variable; sometimes as a return type. Unlike arrays, different instantiations of a generic type are not compatible with each other, not even explicitly. This incompatibility may be softened by the wildcard if

3- What is the difference between array list and enums?

The solution

Array List: The Array List class is a resizable array, The Array List class has many useful methods. For example, add() method, get() method and refer to the index number, set() method and refer to the index number, remove() method and refer to the index number.

Enum: Enumerations serve the purpose of representing a group of named constants (unchangeable variables) in a programming language. For example, the 4 suits in a deck of playing cards may be 4 enumerators named Club, Diamond, Heart, and Spade, belonging to an enumerated type named Suit. An enum can, just like a class, have attributes and methods. The only difference is that enum constants are public, static and final.