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*Activitat 3*

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- **Autoavaluació:**

Aquesta activitat creiem que ens ha sortit bastant bé ja que teníem l'activitat passada feta i ens ha sigut més ja que teníem una bona base.

- 1- 2/2
- 2- 2/2
- 3- 2/2
- 4- 2/2
- 5- 2/2

Tot i tindre alguna que altre complicació creiem que ens ha sortit força bé

- **Codi de l'aplicació:**

1- **Classe, Act4\_Client:**

```
import java.rmi.RemoteException;
import java.rmi.registry.LocateRegistry;
import java.rmi.registry.Registry;
import java.util.Random;

public class Act4_Client {
    public static int heartbeat;
    public static String nom;

    @SuppressWarnings("InfiniteLoopStatement")
    public static void main(String[] args) {

        heartbeat = 2 + (new Random().nextInt(5) + 1);
        System.out.println("Aquest client ha decidit fer un
heartbeat de " + heartbeat + " segons");

        nom = "client_" + generate();
        Act4_Server_Interface serv = null;

        try {
            Registry registry =
LocateRegistry.getRegistry("localhost", 5555);
            serv = (Act4_Server_Interface)
registry.lookup("Act4");
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

```

        if (serv != null) {
            try {
                serv.anunciarPresencia(nom, heartbeat);
            } catch (RemoteException e) {
                e.printStackTrace();
            }
        }

        for (;;) {
            long startTime = System.nanoTime();
            long targetTime = startTime + (heartbeat *
1_000_000_000L);

            for (;;) {
                if (System.nanoTime() >= targetTime) {
                    System.out.println("Batec!");
                    try {
                        assert serv != null;
                        serv.batec(nom);
                    } catch (RemoteException e) {
                        throw new
RuntimeException(e);
                    }
                    break;
                }
            }
        }
    }

    public static String generate() {
        String alphabet = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
        Random rand = new Random();
        StringBuilder result = new StringBuilder();

        for (int i = 0; i < 5; i++)

            result.append(alphabet.charAt(rand.nextInt(alphabet.length
())));
        return result.toString();
    }
}

```

**2- Classe, Act4\_Server\_Interface:**

```
import java.rmi.Remote;

import java.rmi.RemoteException;

public interface Act4_Server_Interface extends Remote {

    void anunciarPresencia(String nomClient, int heartbeat) throws
    RemoteException;

    void batec(String nomClient) throws RemoteException;

}
```

**3- Classe, Act4\_Server implements:**

```
import java.rmi.RemoteException;
import java.rmi.registry.LocateRegistry;
import java.rmi.registry.Registry;
import java.rmi.server.UnicastRemoteObject;
import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;

public class Act4_Server implements Act4_Server_Interface {
    public static List<Client> taula;

    @Override
    public void anunciarPresencia(String nomClient, int
    heartbeat) throws RemoteException {
        taula.add(new Client(nomClient, heartbeat));
        System.out.println(
            "Nou client afegit a la taula; es diu " +
nomClient + " i te un heartbeat de " + heartbeat + "s");
    }

    @SuppressWarnings({ "StringOperationCanBeSimplified",
    "ForLoopReplaceableByForEach" })
    @Override
    public void batec(String nomClient) throws RemoteException
    {
        for (int i = 0; i < taula.size(); i++)
            if
(taula.get(i).nom.toString().equals(nomClient)) {
                taula.get(i).estat = true;
                taula.get(i).passadesServidor = 0;
            }
    }
}
```

```

        System.out.println("Batec rebut desde " +
nomClient);
    }
}

@SuppressWarnings({ "RedundantCast",
"InfiniteLoopStatement" })
public static void main(String[] args) {
    Registry reg = null;
    taula = new ArrayList<>();

    try {
        reg = LocateRegistry.createRegistry(5555);
    } catch (Exception e) {
        System.out.println("ERROR: Registry cannot be
created.");
        e.printStackTrace();
    }
    Act4_Server serverObject = new Act4_Server();

    // Cast serverObject with Remote
    try {
        assert reg != null;
        reg.rebind("Act4", (Act4_Server_Interface)
UnicastRemoteObject.exportObject(serverObject, 0));
    } catch (Exception e) {
        System.out.println("ERROR: Server object
cannot be registered.");
        e.printStackTrace();
    }

    for (;;) {
        long startTime = System.nanoTime();
        long targetTime = startTime + 1_000_000_000L;

        for (;;)
            if (System.nanoTime() >= targetTime) {
                actualitzarTaula();
                break;
            }
    }
}

@SuppressWarnings("ForLoopReplaceableByForEach")
public static synchronized void actualitzarTaula() {
    for (int i = 0; i < taula.size(); i++)
        if (taula.get(i).estat) {
            taula.get(i).passadesServidor++;
            if (taula.get(i).passadesServidor >=
(taula.get(i).heartbeat * 2)) {

```

```

                                taula.get(i).passadesServidor =
(taula.get(i).heartbeat * 2);
                                taula.get(i).estat = false;
                                System.out.println("Fa " +
(taula.get(i).heartbeat * 2) + "s que no rebo res desde "
                                + taula.get(i).nom + ".
El marco com inactiu.");
                                }
                                }
                                }
                                }
                                }

```

#### 4- Classe, Client:

```

public class Client {
    public String nom;
    public int heartbeat;
    public int passadesServidor;
    public boolean estat;

    public Client() {

    }

    public Client(String nom, int heartbeat) {
        this.nom = nom;
        this.heartbeat = heartbeat;
        passadesServidor = 0;
        estat = true;
    }

    public Client(String nom, int heartbeat, int
passadesServidor, boolean estat) {
        this.nom = nom;
        this.heartbeat = heartbeat;
        this.passadesServidor = passadesServidor;
        this.estat = estat;
    }
}

```

- Captures de pantalla

- Aquí tenim una captura del client iniciat

```

Run  Act3_Server  Act3_Client
C:\Program Files\Microsoft\jdk-11.0.12-hotspot\bin\java.exe -javaagent:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\lib\idea_rt.jar=53958:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\bin -Dfile.encoding=UTF-8 -classpath C:\Users\xavie\GitRepos\M9_UF3_Ac3_Heartbeat\out\production\M9_UF3_Ac3_Heartbeat Act3_Client
Aquest client ha decidit fer un heartbeat de 6 segons

```

- Aquí tenim una captura del servidor iniciat

```

Run  Act3_Server  Act3_Client
C:\Program Files\Microsoft\jdk-11.0.12-hotspot\bin\java.exe -javaagent:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\lib\idea_rt.jar=53951:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\bin -Dfile.encoding=UTF-8 -classpath C:\Users\xavie\GitRepos\M9_UF3_Ac3_Heartbeat\out\production\M9_UF3_Ac3_Heartbeat Act3_Server
Nou client afegit a la taula; es diu client_LPKHR i te un heartbeat de 6s
Batec rebut desde client_LPKHR
Batec rebut desde client_LPKHR
Batec rebut desde client_LPKHR
Batec rebut desde client_LPKHR

```

- En aquesta captura podem veure el server desde molts clients nous oberts

```

Run  Act3_Server  Act3_Client  Act3_Client  Act3_Client  Act3_Client  Act3_Client  Act3_Client  Act3_Client  Act3_Client
C:\Program Files\Microsoft\jdk-11.0.12-hotspot\bin\java.exe -javaagent:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\lib\idea_rt.jar=53951:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\bin -Dfile.encoding=UTF-8 -classpath C:\Users\xavie\GitRepos\M9_UF3_Ac3_Heartbeat\out\production\M9_UF3_Ac3_Heartbeat Act3_Server
Batec rebut desde client_LPKHR
Batec rebut desde client_LPKHR
Nou client afegit a la taula; es diu client_PLVPH i te un heartbeat de 4s
Nou client afegit a la taula; es diu client_NAWLK i te un heartbeat de 7s
Batec rebut desde client_PLVPH
Nou client afegit a la taula; es diu client_LBDNT i te un heartbeat de 6s
Batec rebut desde client_LPKHR
Nou client afegit a la taula; es diu client_NVODA i te un heartbeat de 6s
Batec rebut desde client_PLVPH
Nou client afegit a la taula; es diu client_LRPDD i te un heartbeat de 7s
Batec rebut desde client_NAWLK
Batec rebut desde client_LBDNT
Batec rebut desde client_LPKHR
Nou client afegit a la taula; es diu client_QNATI i te un heartbeat de 4s
Batec rebut desde client_PLVPH

```

- En aquesta captura podem veure el server amb un client que passa a ser inactiu

```

Run  Act3_Server  Act3_Client
C:\Program Files\Microsoft\jdk-11.0.12-hotspot\bin\java.exe -javaagent:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\lib\idea_rt.jar=64618:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\bin -Dfile.encoding=UTF-8 -classpath C:\Users\xavie\GitRepos\M9_UF3_Ac3_Heartbeat\out\production\M9_UF3_Ac3_Heartbeat Act3_Server
Nou client afegit a la taula; es diu client_OAQQU i te un heartbeat de 6s
Batec rebut desde client_OAQQU
Fa 12s que no rebo res desde client_OAQQU. El marco com inactiu.

```

- En aquesta captura podem veure el server amb un sol client que es desactiva i després es reactiva i torna a la vida

```

Run  Act3_Server  Act3_Client
C:\Program Files\Microsoft\jdk-11.0.12-hotspot\bin\java.exe -javaagent:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\lib\idea_rt.jar=52974:C:\Users\xavie\AppData\Local\JetBrains\Toolbox\apps\IDEA-U\ch-0\223.8617.56\bin -Dfile.encoding=UTF-8 -classpath C:\Users\xavie\GitRepos\M9_UF3_Ac3_Heartbeat\out\production\M9_UF3_Ac3_Heartbeat Act3_Server
Nou client afegit a la taula; es diu client_DTT06 i te un heartbeat de 4s
Batec rebut desde client_DTT06
Fa 8s que no rebo res desde client_DTT06. El marco com inactiu.
Batec rebut desde client_DTT06
Batec rebut desde client_DTT06
Batec rebut desde client_DTT06

```