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Data

MessageClackData
- -message:String
- +getData():String
- +hashCode():int
- +equals():boolean
- +toString():String

ClackData
- -userName:String
- -type:int
- -date:Date
- +getType():int
- +getUserName():String
- +getDate():Date
- +getData():String

FileClackData
- -fileName:String
- -fileContents:String
- +setFileName():void
- +getFileName():String
- +getFileContents():String
- +readFileContents():void
- +writeFileContents():void
- +getData():String
- +hashCode():int
- +equals():boolean

Main

ClackServer
- -port:int
- -closeConnection:boolean
- -dataToReceiveFromClient:ClackData
- -dataToSendToClient:ClackData
- -DEFAULT_PORT = 7000:int
- +start():void
- +receiveData():void
- +getPort():int
- +hashCode():int
- +equals():boolean
- +toString():String

ClackClient
- -userName:String
- -hostName:String
- -port:int
- -closeConnection:boolean
- -dataToReceiveFromClient:ClackData
- -dataToSendToClient:ClackData
- -DEFAULT_PORT = 7000:int
- +start():void
- +readClientData():void
- +sendData():void
- +receiveData():void
- +printData():void
- +getUserName():String
- +getHostName():String
- +getPort():int
- +hashCode():int
- +equals():boolean
- +toString():String

B) If you provide a null value for the user, a nullPointerException is thrown when calling hashcode. To fix this, an if statement could be added to hashcode() to just add 1 or something to the hash code if null is encountered. A negative port also causes an error, and to fix it we should use an unsigned short, but since that isn't possible in java we could use two's complement to make it act like an unsigned short.