COMP3331 Assignment 1 Report

1. The STP protocol was implemented with three java classes. The sender class implemented the client side of the STP protocol and the receiver class implemented the server side of the STP protocol. The packet class manages the information of the packets being sent and received within the transfer protocol. The Sender and Receiver classes can set up the three-way handshake by sending syn, syn-ack and ack packets between each other. The Receiver class is constantly listening on the socket until a fin packet is received. After receiving a packet, based on what type of packet it is, an action is performed. E.g. A syn packet received will result in a syn-ack packet sent or a packet with data in it with result in an ack packet sent. The Sender class initially sends a syn packet to initiate the connection. It then begins the transfer of the data by copying a line of the file to an array and then sending a packet with that array attached as the payload. The Sender class also listens for packets from the sender in which packets sent can be acked. When all packets are sent a fin packet is sent which commences the 4 segment connection termination.

   Some features of a reliable transfer protocol such as timeout, fast retransmit, sequence numbers, resending lost packets were not able to be implemented successfully. Part of this was due to starting the assignment late and then having problems with other features, eventually leaving minimal time to complete all features in the spec. I found it difficult trying to send packet objects through UDP packets as this involved ObjectOutputStreams which gave me errors that I couldn't work out. This ultimately led to sequence numbers not having to correct implementation.

2.

0	324	Hello World

   The first part of the header is the Id number. This determines what type of packet it is e.g. 0 is a syn packet, 1 is a syn-ack, 2 is an ack etc. The second part is the sequence number helps the sender and receiver classes determined which packets have been received and what data is expected next. Although my program does not implement sequence numbers successfully and therefore if a packet is lost then the data will not be sent. Finally, the last part of the header is the data being sent. The only time this field contains data is when the sender transmits a packet to the receiver containing a string of text.

3. The timeout feature is not implemented in my program.