



a) Segment 1: radio (wireless)

Because Jill uses mobile phone to connect her laptop and mobile phone uses radio to transmit data. Also, the distance is not so long that radio is appropriate for this segment.

Segment 2: Microwave (wireless)

Because the distance between two country telephone exchanges is very long that is about 120 km. Microwave is appropriate because it can cover a long distance and ^{has} high capacity to ~~transmitt~~ transmit many signals at the same time. It is transmitted through antennas between two country telephone exchanges.

Segment 3: Fibre optic (wire)

Because fibre optic can transmit many signals at one time and it is very fast. It ~~can~~ can be used in a long distance ~~and~~ although it is very expensive

Segment 4: Twisted pair (wire)

Because twisted pair is often used to transfer phone



call signals. ~~Ampl~~ Repeaters are often used to amplify data signals over a long distance. It is cheap and easy to set up.

b) The advantages of using mobile technology are that Jill can log on to the head office no matter where she is. It doesn't require dedicated wires to meet the requirements of setting up links to the head office.

It is convenient and it saves money of going back to the head office and obtain information. Furthermore, when customers require information about the products, Jill can easily log on to the database in headoffice and obtain the information. This will improve efficiency and effectiveness of her job.

c) Data dictionary is a modelling tool that describes ~~information~~ data in the database. It gives Jill an idea of where the data are located in the database. In constructing ~~a~~ SQL queries, it needs to determine which data to be selected from which table. Therefore, data dictionary can assist her.



When Jill uses SQL queries, she has to fill in "SELECT" which refers to "fields". "From" refers to the name of the table. ~~But~~ Data dictionary has done jobs in defining field names, field size, data type. So Jill can look at the field names in the table and construct a SQL query from looking at the table.