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a)i] The advantages of a 'grandfather-, father,-son backup a

- ~~The~~ **Three** ~~test~~ generations of the master files are backed-up, which ensures the safety of the data. ~~is that the model for recovery.~~

- The back-ups are full back-ups, which are more efficient for recovery, especially when there is three generations. This enables the previous backup to be used if the recent one is damaged.

ii]
- These procedures should be tested periodically to ensure that they are functioning on demand because they are not functioning when the original system is working so therefore their performance is not known without this test.

- This test is also done periodically to familiarise all the people involved or who will be affected by the alternative procedure with its operation.

b)i] - By implementing a real-time transaction system for orders, data validation could occur, hence the

customers would only be able to choose pies that are in season. Done by a list check for the pies

- Also on the real-time transaction system, the credit card payments could be filled in after the customer has filled in the online order form. The credit card transaction could also perform validation checks, like type check and ~~range~~ range check to ensure only ~~the~~ numbers are entered into the box for the credit card numb Also a range check to perform data validation on the expiry date of the card.

- The customers would recieve online reciepts they can print out that inform them of their orde and details on when they will be available.

- By having this database on the Internet in real-t it poses troubles is backing-up. Periodic back-ups need to take place (every hour) and also the back-ups need to be kept in a safe, secure store.

- The information technology required will need to be improved. Higher speed Internet connection (cable

plus a faster-processor computer with larger storage ~~space~~ or disk space.

- Jobs may be lost in the transaction side of the business due to the manual credit card transactions not taking place, neither the phone calls etc. However jobs will be created on the technological aspect of the system. Technitians, web designers, programmers etc. will be required to develop, run or maintain the new system.

- Privacy will need to be addressed. All the customers details and credit-card numbers will ~~be~~ need to be secure on the database with password protection.

- The web-site will need to be secure during credit card transactions. The use of encryption will overcome this problem.

ii) The introduction of this new facility brings about issues related to data accuracy, security and integrity.

- The accuracy of data must be addressed so that customers do not recieve too much or too little funds in a transaction. To ensure this, the user will perform validation checks themselves, thus becomming participants of the system.

- The database of the bank will need to be updated constantly in a real-time transaction process. This means that what ever the balance is on the screen is the correct balance it should be at that time. Even if transactions have occured before it, and need to be cleared, they should still show the proposed balanced at that time.

- Issues relating to data security need to ensure that not only the customers details are only accessed by themselves or people with authority, but also that all their money is secure from unauthorised change. Password verification is essential over the Internet and is used along with encryption of data during transactions. The customers details must not be given out, sold or abused and there should be adequite measures to ensure the custom of this

(25) c) (CONTINUED)

- The payments that are made over the Internet must be confirmed with the other bank or the payee and the payer.

- The transfer of funds to other accounts at other banks should have appropriate communication links so that the both the banks are ready and up-to-date for the transaction to take place. Also, both banks must ensure the correct data is recieved as it is sent. This is done by parity checks, and other forms of error detection.

- Statements should be issued to the customer indicating every transaction that took place, from both banks.

- Adequate security measures should be implemented if the user was to lose or forget their password. Such as a secondary password or question, or even deep information about the customers address, date of birth, family etc.