

22) a) i) Outsourcing is the contract (or hire) employment of external staff, to perform certain tasks. These staff are not permanent.

ii) The implications of outsourcing on ^{this} software are that the bank may save money, as the outsourced staff are paid only to make the software, and thus do not have permanent employment. However, this means that should the bank require maintenance on the software, they may have to hire a different company / staff, which do not have previous knowledge of the system. Also, ~~because~~ due to the nature of the banks network, security flaws may be known by the outsourced staff - this being dangerous because they will have much less loyalty than full time staff.

22) a) (iii) Steps to be taken to ensure reliability of the systems operation are:


Live testing - Ensure that expected outputs are achieved


Mock trial - Trial the system with boundary values etc

Stress testing - Test with different, extreme conditions

Security testing - Test the system security

Pathways (logical) - Test all the logical pathways of the system. Fix all errors.

b) i)  - indicates the passing of parameters or variables in the direction shown

 - indicates a flag passed in the direction shown

22) b) i) ~~Error on line 21 - Validated =~~
Error at line 14 - ENDWHILE (without another condition)
The effect this error would have on the system would be that the system would run the AcceptCardDetails and the AcceptAndValidatePassword without the card being in the slot. This presents a huge security problem. The code should read:

```
14 ENDWHILE
15 IF CardInSlot = TRUE THEN
16   AcceptCardDetails (Customer Number, Stored Password)
17   :
18   :
22   Validated = TRUE
23 END IF
24 ENDWHILE
25 END
```

22) b) (iii) BEGIN AcceptAndValidatePassword (StoredPassword, Validated)

attempts = 1

WHILE attempts <= 3 AND Validated = FALSE

~~attempts = attempts + 1~~

READ Password

attempts = attempts + 1

IF Password = StoredPassword THEN

Validated = TRUE

END IF

END WHILE

~~PRINT "Sorry, no more attempts for you!"~~

END Sub program

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22 b) ii) BEGIN AcceptAndValidatePassword (StoredPassword, Validated)

attempts = 1

WHILE attempts <= 3 AND Validated = False

READ KeyedPassword

attempts = attempts + 1

IF ~~password~~ KeyedPassword = StoredPassword THEN

Validated = TRUE

END IF

END WHILE

END Sub