INSTRUCTIONS:

Create a Windows application using C#, that has the following functionality:

South Africa has gained a reputation for being the crime capital of Africa. Various types of crime are committed in South Africa. You have been tasked with development of a Pet Tracker System that will assist pet owners to recover lost / stolen pets.

Police Statistics have reported an increase in thoroughbred dogs and puppies being stolen and being used in illegal dog fights or being resold on the black market as pets. To curb the increase in theft and abuse of animals, animal lovers can have their pet microchipped by a veterinarian. A microchip contains a unique ID number that will be used to register and keep

track of a pet on the database. The vet will give the pet ID to the owner for registration of the pet after the microchip has been inserted. Any animal that is stolen and recovered can be scanned by a vet or the SPCA to locate the microchip and its corresponding pet ID. In this way their owner can be identified, contacted and the pet returned to its owner. The system is not restricted to dogs, cats and other types of pets can also be microchipped and registered as well.

You are expected to build a desktop application using a database that allows a veterinarian or pet owner to perform the following:

(a) Registration of Pet Owners: When registering pet owners, the system should make sure that no two pet owners have the same ID number. Use the SA ID number which is unique. Information such as name, address and contact details should be stored for a pet owner. A pet owner should be able to sign up and create a login profile and register as a pet owner when using the system for the first time.

(b) Registration of Pets: pet owners should be able to login and register a new pet that has been microchipped as belonging to him/her. Information for a pet will include details such as type of pet, breed, colour, gender, date of birth etc. A pet owner can own many pets and may choose to have all their pets registered on the system. The system can keep track of a pet owner and link him to all his registered pets.

(c) Check Pet status: Lost/stolen animals recovered by police or members of the public are taken to the SPCA or local vet to see if they have a microchip. If a microchip is found, the vet will then check the status of the animal, to see if the pet has been reported as lost/stolen. Vets must be able to determine who the owner is and retrieve his information, so that the pet owner may be contacted and reunited with his pet.

(d) Select/insert/update/delete records : This function should allow a pet owner to view the information of all pets that are registered to him. Allow a pet owner options to register a new pet, update information for an existing pet, and delete a record for a pet that has died.

(e) Lost/Stolen Pets: For pets that have been reported as lost / stolen, and their status updated to reflect as such. Details of the case should be recorded in a new table. Such information should show pet ID, owner ID, date of loss/theft, vicinity of loss/theft and status. When a previously reported lost/stolen animal is recovered, update their status to recovered.

(f) Transfer of pet ownership: Sometimes pets may change owners due to a variety of reasons. Allow a pet owner to change the status of his ownership for a specific pet where ownership has been transferred. The system should keep a history of the transfer of the pet, with details recorded of the previous owner ID, new owner ID, pet ID, date of transfer and reason for transfer. For an existing pet already on the system that has changed owners, the new owner can login and have an existing pet assigned to him, provided that the sale/transfer is verified through the transfer history.

g) Please ensure that you identify and create all needed tables for the required functionality. Ensure that you normalise your tables to prevent redundancies and anomalies. You are free to choose between creating MS Access, SQL Server or an Oracle database. Ensure that you populate your tables with adequate data so as to test your application rigorously and thoroughly.

h) Please ensure that you provide adequate validation so as to minimise data capture errors and also handle all exceptions, so that your program does not crash.

Below is a SUMMARY of Criteria used to assess the application.

Database design (Normalisation, adequate number of tables, relationships)	
Interface Design	
Functionality	
Error handling (Validation, exception handling)	