PYTHON  
1. Four classes have been created in this PYTHON project.  
Draw a class diagram in the space below showing the classes  
(including their attributes and methods) and relationships.  
  
(1 mark)  
  
  
PYTHON  
2. In the setup method of the Controller class write code that to create the following Donors using the add\_donor method that exists in the BloodBank class.  
  
  
NationalID First Name Last Name Gender  
9800100 Jonathan Watts M  
4023500 Sandy Moore F  
7906553 John Burk M  
5000990 Daniel McDonald M  
6896701 Cathy Watson F  
  
  
NOTE: the defect in this data is deliberate – fix it!  
  
(2 marks)  
  
  
PYTHON  
3. Write a display\_donors method for BloodBank class that displays data about the Donors.  
  
The required output is:  
  
Watts, Jonathan [M]  
Moore, Sandy [F]  
Burk, John [M]  
McDonald, Daniel [M]  
Waterson, Cathy [F]  
  
NOTE: Punctuation and spacing and ORDER must also be as shown above.  
  
(3 marks)  
  
  
PYTHON  
4. Write an add\_donation method for the Donor class that can be used to create a new Donation.  
Note: You will need to add some code in the Donation class as well.  
  
(4 marks)  
  
PYTHON  
5. In the setup method of the Controller class write code to create the following Donation, using the add\_donation method that has been created previously.  
NOTE: You will have to use the find\_donor method in the BloodBank class  
  
NationalId BranchName Town DonationDate BloodGroup  
4023500 Christchurch Addington 01/12/2018 AB+  
5000990 Wellington Newtown 30/08/2017 O-  
6896701 Auckland Manuka 11/07/2019 O+  
7906553 North Shore Takapuna 15/12/2016 B-  
9800100 Nelson Tahunanui 09/11/2017 AB+  
9800100 Otago Dunedin 05/10/2018 AB+  
  
  
(5 marks)  
  
PYTHON  
6. Write a boolean get method named has\_positive\_blood\_group in the Donor class that returns true if their blood group ends with a '+' and false otherwise.  
  
(2 marks)  
  
PYTHON  
7. Write a display\_positive\_donors method for the BloodBank class that first lists for each Donor who who has positive blood group, the Donor's details and then lists underneath the details of the Donation as shown below.  
This method must call the method created in the previous question.  
The required output is:  
  
Moore, Sandy [F]  
 Has blood group <AB+> donated on 12/1/2018 at Christchurch  
Watson, Cathy [F]  
 Has blood group <O+> donated on 7/15/2019 at Auckland  
Watts, Jonathan [M]  
 Has blood group <AB+> donated on 11/9/2017 at Nelson  
 Has blood group <AB+> donated on 10/5/2019 at Otago  
  
NOTE: The order shown above is the required order. Punctuation and spacing must also be as shown above.  
  
(8 marks)