① Design a class named Account that contains:

- private int data field named id for the account (default 0)

- private double data field named balance for the account (default 0)

- private double field named annualInterestRate that stores the current interest rate (default 0) Assume all accounts have same interest rate

- private Date field named dateCreated that stores the date when the account was created.

- default constructor that creates a default account

- constructor that creates an account with the specified id & initial balance.

- Accessor & mutator methods for id, balance, & annualInterestRate

- Accessor method for dateCreated

- method named getMonthlyInterestRate() that returns the monthly interest rate

- method named getMonthlyInterest() that returns the monthly interest

- method named withdraw that withdraws a specified amount from the account

- method named deposit that deposits a specified amount to the account

- Write a test demo program that creates an Account object with an ID of 1122, a balance of $20,000.00, & an annual interest rate of 4.5%.

  - Use the withdraw method to withdraw $2,500.00 & use the deposit method to deposit $3,000.00, & print the <u>balance</u>, the <u>monthly interest</u>, & the <u>date</u> when this account was created.

(2) Write a recursive method that parses a hex number as a string into a decimal integer. The method header is:

    public static int hex2Dec(String hexString)

Write a demo program that prompts the user to enter a hex string & displays its decimal equivalent. (Recall: $A_{16} = 10_{10}$, $B_{16} = 11_{10}$ ... $a_{16} = 49_{10}$)

Use the following hex values to convert:
       BAD, BAC98, BabA73

③ Rewrite #2 using a parseHex(String hexStr)
   & convertHexToDec (char ch).

- Have the convertHexToDec method throw a
NumberFormatException if the string is not a
hex string.

- Inside main():

      Call parseHex ("A5");
           parse Hex ("FAA");
           parse Hex ("T1Ø");
           parse Hex ("ABC");
           parse Hex ("1Ø A");