**Q1**: Write a method “***square***” which takes a number as parameter and returns the square of that number. Number could be of any type like int, float, and double.

**Q2**: ***toString12 ()***

Write a method *toString12*() that takes hours and minutes as parameters and returns the time as a string in 12-hour form, appending AM or PM as appropriate. For example, for the time 22:37 would be returned as "10:37 PM". There are three cases:

* Before 12 is AM.
* Between 12 and 13 is PM, but written with 12.
* 13 and after are PM with 12 subtracted from the hour.

**Q3**: (If you have not created this class for exercise 1)

Create a class called Employee that includes three pieces of information as data members—a first name (type string), a last name (type string) and a monthly salary (type int). Your class should have a constructor that initializes the three data members. Provide a set and a get function for each data member. If the monthly salary is not positive, set it to 0.

Add a method *toString* that returns a string description of the instance in the format **“Employee’s *name is first name last name and his salary is salary.”***

**Q4: (**Checking cards equality)

Write a method *is\_equal* to determine whether two card have same suit and rank or not.

You can use ‘H’ for hearts, ‘S’ for spades, ‘C’ for clubs and ‘D’ for diamonds to assign suit to a card. For rank you can use numbers from 2 to 10 and characters (J, Q, K, A).

Suit and rank should be taken as input from user and checked whether it is legal input or not. For example, if ‘F’ is entered when input is taken for suit, then your program should ask again for legal input and also check legality for rank.

**Q5:** (login System)

Write a program which takes username and password as input and stores them in a file in the encoded form (encoding process is described below). Then write a method which reads encoded user name and password from the file, prints them on the screen and decodes (Decoding process is described below) back into its original form. In the end display original name and password on the screen.

**Encoding Technique:**

Write a method *encode() which takes 3 parameters: original username, password and shift.*

In this method each letter is shifted by the value in shift. For example, if shift is 3, the character *a* in the number or password will be replaced by *d*, *b* will be replaced by *e*, *c* will be replaced by *f*, and so on.

**Decoding Technique:**

Write a method *decode() which takes 3 parameters: username, password and shift.*

In this method each letter is shifted by the value in shift. For example, if shift is 3, the character *d* in the number or password will be replaced by *a*, *e* will be replaced by b, *f* will be replaced by *c*, and so on.