CECS 174 – Lecture 26

Overloading Methods and Constructors – creating multiple methods (or constructors) that use the same method name and perform similar tasks, but are differentiated by their parameter lists.

Example Class – creating a bank account class using overloaded methods.

```
public class Account{
     private double balance;
```

Default Constructor – sets the initial values of the data members with default values.

```
     public Account(){
          balance = 0.0;
     }
```

Overloaded Constructor – uses parameters to set the initial values of the data members. The compiler knows when to use this constructor rather than the previous because the parameter list is different. When the constructor is called, the programmer will decide whether to use the constructor with the parameter list or without it.

```
     public Account( double init ){
          balance = init;
     }
```

Methods – actions the object can perform.

```
     //returns the account balance
     public double getBalance(){
          return balance;
     }

     //deposits the amount and returns the balance
     public double deposit( double amount ){
          if(amount > 0){
               balance += amount;
          }
          return balance;
     }

     //withdrawals the amount and returns the balance
     public double withdrawal( double amount ){
          if(amount > 0){
               balance -= amount;
          }
          return balance;
     }
```

Overloaded Method – much like the overloaded constructor, the compiler knows the difference between this method and the previous withdrawal method by the difference in their parameter lists.

```
     //withdrawal with fee, subtracts from balance
     public double withdrawal( double amount, double fee ){
          if(amount > 0){
               balance = balance – amount - fee;
          }
          return balance;
     }
}
```

Using Overloaded Methods –

```
public class Bank{
     public static void main (String[] args){

          Account acc1 = new Account();

          //overloaded constructor
          Account acc2 = new Account(525.0);

          System.out.println("Acct 1="+acc1.getBalance());
          System.out.println("Acct 2="+acc2.getBalance());

          System.out.println("Enter deposit amount");
          double depAmt = in.nextDouble();
          acc1.deposit(depAmt);

          System.out.println("Enter withdrawal amount");
          double witAmt = in.nextDouble();
          acc2.withdrawal(witAmt);

          //overloaded method
          System.out.println("Enter withdrawal amount");
          double witAmt = in.nextDouble();
          acc1.withdrawal(witAmt, 1.25);

          System.out.println("Acct 1="+acc1.getBalance());
          System.out.println("Acct 2="+acc2.getBalance());
     }
}
```