

## Task 0 Object Oriented Programming course Ariel University in Samaria

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In this task we were required to implement a number of primary classes, a class representing a mathematical mono, which contains two basic variables: the monomonic coefficient and the presumption of the mono variable defined as X.

According to the definitions of the Monom department - this department is required to implement the function that takes any number of a real number defined as X, and returns the mono value for this number that is recorded according to the coefficient and the power belonging to the class.

This is in addition to the definition of the following class constructors: Default constructor, constructor creates and constructs a copier as in any class that is being built. A printing method used for mono reception in the main program has also been set and printed to the screen.

In addition, there are implementations of other methods in the department: the realization of the derivative of the department mono - by changing the coefficient of the monum and its holding according to the mathematical rules for the calculation of a monomial derivative, the realization of the act of connecting two monomers data - These are equal. The operation of subtraction on monomers was performed in the same manner as the connection operation. The realization of the multiplication operation of two data monomers will also be performed by multiplying the coefficients and connecting the holdings.

In order to implement these methods correctly, the following private methods were defined:

A Boolean method that checks whether the power of two monomers received is indeed equal, then returns true and false, if not. Two other methods that deal with the changes that take place on the Monum presumption and the mono promoter at the time of performing a shear operation using the same cutting method in the department.

The second class was defined as a class representing a mathematical polynomial. The realization of the polynomial was done by defining an array list that was not confined to a place level and contained a collection of monomers, which is the definition of a polynomial.

Here, too, the class constructor was defined in addition to its basic variables, which are the same array list that contains monomers and also an iterator that points to an object within the same array list when this object is monom in order to perform the different methods.

In this class, the realization of a monom mon for a given polynomial, a connection between two polynomials, a polynomial subtraction, a multiplication, a calculation derived from this method was performed by using a new ether defined in each method and aimed at voting on the elements of the array list containing various monomers that make up the polynomial in question.

In addition, additional methods have been defined according to the requirement, a Boolean method that checks whether the polynomial obtained is the zero polynomial (ie, it does not contain any monomers). Another boolean method that checks for two monomers absorbed is whether they are equal.

In addition, another significant method used is a method that converts a string that was accepted by the user in the main program into a standard polynomial and applied all the relevant restrictions to the polynomial state. Another method that was assigned is responsible for copying the data from the entire polynomial of the class to a new polynomial that was recorded.

In the main program defined by the department, the tests were performed for each method and method in an orderly manner, in order to perform a comprehensive check of the correctness of all the functions in the department.