# Assignment - 3

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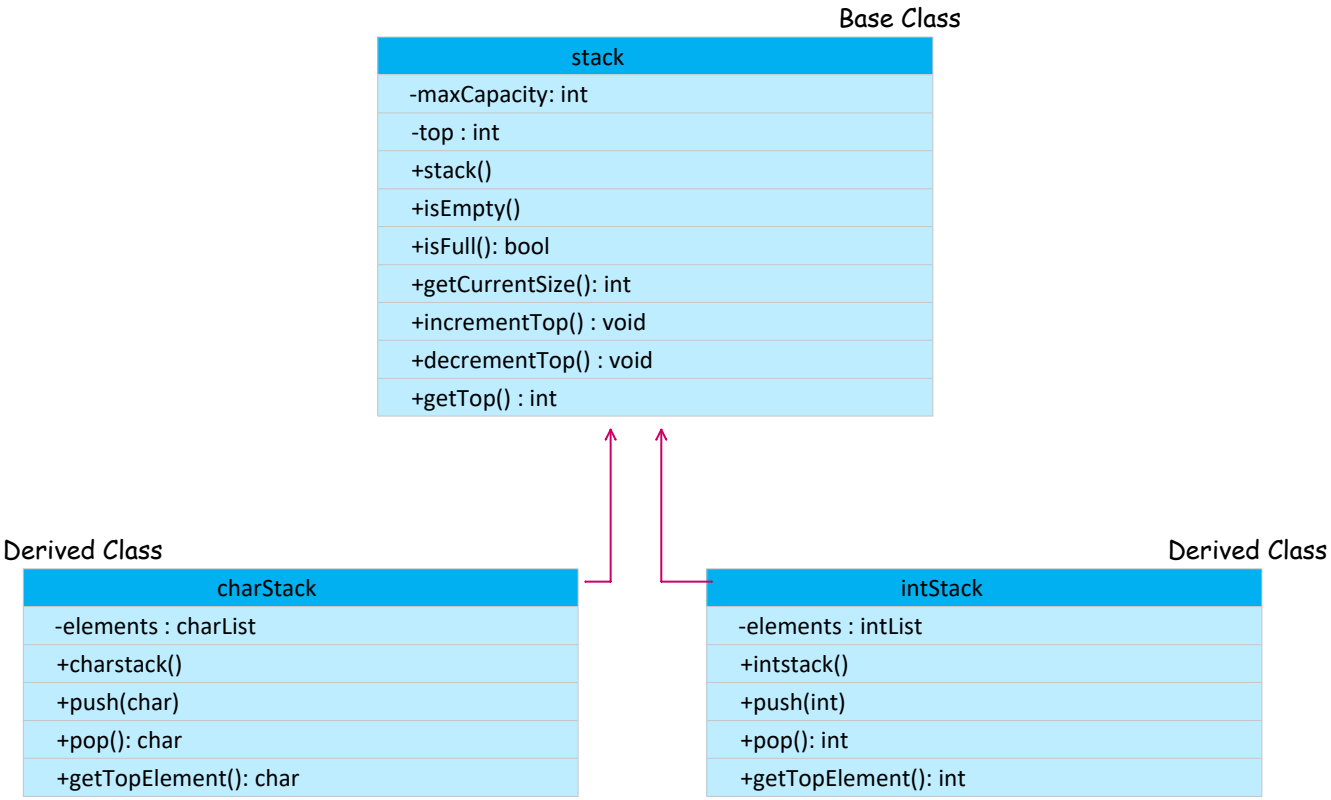
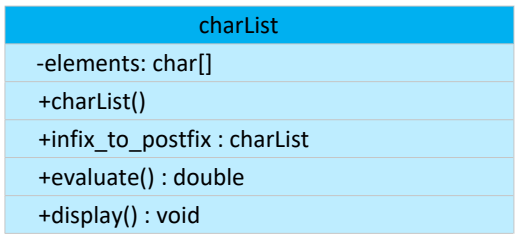
Consider the following UML diagrams:




charList UML diagram is




For intList UML diagram, you may check previous lectures.

Using above class structures and inheritance, answer the following questions:

1. Convert an Infix Expression into Postfix Expression.
2. Evaluate the Postfix Expressoin.

**Instructions:**

- Consider the algebraic expressions using integers and +, -, *, /, ^ and parenthesis (, ).
- Example: 23+6*(42-6)/7.
- Program should accept input as integer algebraic expression as above example.

- Here we provided a main() code, UML diagrams and use inheritance discussed in OOP class.
- Do not write any functions outside of classes. All functions must be member functions of some class.
- You just have to code wherever commented "Code here".
- IMPORTANT: Don't touch the main() function body. It may lead to invalidation of your assignment.

**Limitations:**

- Integer range: 0 to 10000
- No spaces and special characters allowed in input and output expressions.
- Length of the expression is between 1 to 500

**Sample Runs:**

Example Run - 1 :
Input :
2*(3+5)
output :
235+*
Value is : 16

Example Run - 2 :
Input :
23+65*98/((65-36)-87+42)/6
output :
236598*6536-87-42+/6/+
Value is : -43

Example Run - 3 :
Input :
19+((2-98)*6-6^3*3+1-569*287+89+67*(3+1))*5-(91+2-98*6-6^3)*23+11-569*817+89+647*(23-1)+900000+19+((2-98)*6-6^3*3+1-569*287+89+67*(3+1))*5-(91+2-98*6-6^3)*23+11-569*817+89+647*(23-1)+900000+19+((2-98)*6-6^3*3+1-569*287+89+67*(3+1))*5-(91+2-98*6-6^3)*23+11-569*817+89+647*(23-1)+900000+19+((2-98)*6-6^3*3+1-569*287+89+67*(3+1))*5-(91+2-98*6-6^3)*23+11-569*817+89+647*(23-1)+3*900000
output :
19298-6*63^3*-1+569287*-89+6731+*+5*+912+986*-63^-23*-11+569817*-89+647231-*+900000+19+298-6*63^3*-1+569287*-89+6731+*+5*+912+986*-63^-23*-11+569817*-89+647231-*+900000+19+298-6*63^3*-1+569287*-89+6731+*+5*+912+986*-63^-23*-11+569817*-89+647231-*+900000+19+298-6*63^3*-1+569287*-89+6731+*+5*+912+986*-63^-23*-11+569817*-89+647231-*+3900000*+
Value is : 379952