

Please notice that I also implement multiply operation.

## 1. Structure

Define a structure named number to store inputted number

```
typedef struct number_ {
```

```
    char type;
```

```
    char *numString;
```

```
    int negative;
```

```
    int equiv;
```

```
} number;
```

## 2. Functions

```
int isDigit (char x);
```

Check if a character is a digit

```
int Pow (int power, int base);
```

Compute the power of a int (To avoid the math lib)

```
int isBinary(char* numB);
```

Check if a String is in correct binary format

```
int isOctal(char* numO);
```

Check if a String is in correct Octal format

```
int isHex (char* numH);
```

Check if a String is in correct Hex format

```
int isDecimal(char* numD);
```

Check if a String is in correct Decimal format

```
int validateToken(char* num);
```

Check if a String is a valid token or not

```
int strToInt(number *ptr);
```

Convert a String (From number structure) to Int

```
int hexToInt(number* ptr);
```

Convert a hex (From number structure) to Int

```
int convertToInt(number* ptr);
```

Convert a String (From number structure) to Int

```
number* numCreate (char* str);
```

Create a number structure from a String

```
char* toStr(char type, int ans);
```

Convert a int, octal, hex to Int

```
char* toHex(int ans);
```

Convert the answer to Hex

char\* convertAns (char type, int ans);

Convert the answer to a certain type (except for Hex)

int checkResult(char type, int ans, number\* num1, number\* num2);

Check if the output result is 32 bits or not

int Result(char op, number\* num1, number\* num2);

compute the result of \* + - operations

void delete (number\* num1, number\* num2, char\* str);

Free all the tokens

3. The most challenge part is to avoid the math lib for me.

4. Best Case: 2 32 bit int add up, output is in int form and the result is also within 32 bit.

Big (O) = Big(1)

Worst Case: two Binary add up, output is in also in binary form.