Day 66/180 Double Pointer in c++

1: What is the difference between static memory allocation and dynamic memory allocations?

2: Predict the output without running it on compiler

```
 void modifyString(char *str)
{
    while (*str)
    {
        if (*str >= 'a' && *str <= 'z')
        {
            *str = *str - 'a' + 'A';
        }
        str++;
    }
}

int main()
{
    char myString[] = "hello World";
    modifyString(myString);
    cout << myString;
    return 0;
}
```

3: Predict the output:

```
void concatenateAndPrint(char *str1, const char *str2)
{
    while (*str1)
    {
        str1++;
    }

    while ((*str1 = *str2))
    {
        str1++, str2++;
    }
}

int main()
{
    char first[] = "Good";
    const char second[] = "Morning";
    concatenateAndPrint(first, second);
    cout << first;
    return 0;
}
```

4: Predict the output without running it on compiler:

```
void reverseString(char *str)
{
    char *end = str;
    while (*end)
    {
        end++;
    }
```

```
    end--;

    while (str < end)
    {
        char temp = *str;
        *str = *end;
        *end = temp;
        str++, end--;
    }
}

int main()
{
    char myString[] = "Programming";
    reverseString(myString);
    cout << myString;
    return 0;
}
```

5: Predict Output without running it on Compiler

```
 void updateValues(int *a, int *b) {
    *a += *b;
    *b = abs(*a - 2 * (*b));
}

int main() {
    int x = 5, y = 3;
    updateValues(&x, &y);
    cout << x << " " << y;
    return 0;
}
```

6:

```
void countVowelsAndConsonants(const char *str, int &vowels, int
&consonants) {
    vowels = consonants = 0;

    while (*str) {
        char ch = tolower(*str);
        if (isalpha(ch)) {
            if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
                vowels++;
            } else {
                consonants++;
            }
        }
        str++;
    }
}

int main() {
    const char *text = "Hello, World!";
    int numVowels, numConsonants;
    countVowelsAndConsonants(text, numVowels, numConsonants);
    cout << "Vowels: " << numVowels << ", Consonants: " <<
numConsonants;
    return 0;
}
```

6:

```
void foo(int *i, int*j) {
    *i = *i + *j;
    *j = *i - *j;
    *i = *i - *j;
}


int main()
{
  int a = 4, b = 5;
  foo(&a, &b);
 cout<<a<<b;
}
```