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Sheet 5

1. Draw a Flowchart for The Following Code

1.

```cpp
#include<iostream>
using namespace std;
int main() {

    int counter = 0, i = 0;

    for (; i < 5; i++) {
        counter++;
    }
    cout << counter;
}
```

2.

```cpp
#include<iostream>
using namespace std;
int main() {

    int counter = 0;

    for (int i = 0; i < 5; i++) {
        for (int j = i; j < 5; j++) {
            for (int k = j; k < 5; k++) {
                counter++;
            }
        }
    }
    cout << counter;
}
```

3.

```cpp
#include <iostream>
using namespace std;
int main() {

    int i = 0, x = 0;
    int x = 9;

    while (x > 0)
        x--;
    cout << x;

    return 0;
}
```
4.
```cpp
#include <iostream>
using namespace std;

int main() {
    int num, digit, largest = 0;
    cout << "Enter a number: ";
    cin >> num;

    while (num > 0) {
        digit = num % 10;
        if (digit > largest) {
            largest = digit;
        }
        num = num / 10;
    }

    cout << "Largest digit is: " << largest << endl;
    return 0;
}
```

5.

```cpp
#include <iostream>
using namespace std;

int main() {
    int n;
    bool isPrime = true;

    cout << "Enter a number: ";
    cin >> n;

    if (n <= 1)
        isPrime = false;
    else {
        for (int i = 2; i <= n ; i++) {
            if (n % i == 0) {
                isPrime = false;
                break;
            }
        }
    }

    if (isPrime)
        cout << n << " is a prime number." << endl;
    else
        cout << n << " is not a prime number." << endl;

    return 0;
}
```

2. __Problem-Solving__

Draw Flowchart and Design an Algorithm for the following Problems :

1. Find power of a number both taken by the user.

2. Calculate sum of digits of a number.
3. Given a letter X. Determine whether X is Digit or Alphabet and if it is Alphabet
    determine if it is Capital Case or Small Case.

    Note:

    Digits in ASCII '0' = 48,'1' = 49 ....etc
    Capital letters in ASCII 'A' = 65, 'B' = 66 ....etc
    Small letters in ASCII 'a' = 97,'b' = 98 ....etc

4. Given a number N. Determine whether N is **float number** or **integer number**.
5. Given a letter X. If the letter is lowercase print the letter after converting it
    from lowercase letter to uppercase letter. Otherwise print the letter after
    converting it from uppercase letter to lowercase letter.

    Note : difference between 'a' and 'A' in ASCII is 32 .

6. Enter a number and print its reverse.