

LOGIC BUILDING

HOW TO BUILD LOGIC FOR ANY GIVEN PROGRAM?

To build logic for a program, follow these steps:

1. Identify the problem or task that needs to be accomplished. Clearly define the input and output for the program.
2. Break down the problem into smaller, manageable chunks. This will make it easier to understand and solve.
3. Determine the necessary steps or actions that need to be taken to solve the problem.
4. Develop an algorithm or set of instructions that outlines the steps in a logical order.
5. Test the algorithm to ensure that it works correctly and produces the desired results.
6. Continuously review and refine the logic as needed to optimize the program and improve its efficiency.

Remember to always think critically and systematically when building logic for a program. This will help ensure that the program is accurate, effective, and efficient.

SOME BASIC PROBLEMS:

PRINT SQUARE OF A NUMBER

```
public class SquareBruteForce {  
    public static void main(String[] args) {  
        int num = 5;  
        int square = num * num;  
        System.out.println("The square of " + num + " is " + square);  
    }  
}
```

PRINT FACTORIAL OF A NUMBER

```

public class Factorial {
    public static void main(String[] args) {
        int num = 5;
        int result = 1;
        for (int i = 1; i <= num; i++) {
            result = result * i;
        }
        System.out.println("The factorial of " + num + " is " + result);
    }
}

```

PRINT PRIME NUMBERS BETWEEN A RANGE

```

public class PrimeNumbers {
    public static void main(String[] args) {
        int lower = 1;
        int upper = 10;
        for (int i = lower; i <= upper; i++) {
            boolean isPrime = true;
            for (int j = 2; j < i; j++) {
                if (i % j == 0) {
                    isPrime = false;
                    break;
                }
            }
            if (isPrime) {
                System.out.println(i);
            }
        }
    }
}

```

PRINT REVERSE OF A NUMBER

```

public class ReverseNumber {
    public static void main(String[] args) {
        int num = 12345;
        int reverse = 0;
        while (num != 0) {
            reverse = reverse * 10;
            reverse = reverse + num % 10;
            num = num / 10;
        }
        System.out.println("The reverse of the number is: " + reverse);
    }
}

```

PRINT WHETHER A NUMBER IS PALINDROME OR NOT

```
public class PalindromeNumber {
    public static void main(String[] args) {
        int num = 121;
        int temp = num;
        int reverse = 0;
        while (temp != 0) {
            reverse = reverse * 10;
            reverse = reverse + temp % 10;
            temp = temp / 10;
        }
        if (num == reverse) {
            System.out.println(num + " is a palindrome.");
        } else {
            System.out.println(num + " is not a palindrome.");
        }
    }
}
```

PRINT A NUMBER IS PERFECT NUMBER OR NOT

```
public class PerfectNumber {
    public static void main(String[] args) {
        int num = 6;
        int sum = 0;
        for (int i = 1; i < num; i++) {
            if (num % i == 0) {
                sum += i;
            }
        }
        if (sum == num) {
            System.out.println(num + " is a perfect number.");
        } else {
            System.out.println(num + " is not a perfect number.");
        }
    }
}
```

PRINT A NUMBER ARMSTRONG

```
public class ArmstrongNumber {
    public static void main(String[] args) {
```

```

int num = 153;
int temp = num;
int digits = 0;
int sum = 0;
while (temp > 0) {
    digits++;
    temp = temp / 10;
}
temp = num;
while (temp > 0) {
    int digit = temp % 10;
    sum += Math.pow(digit, digits);
    temp = temp / 10;
}
if (sum == num) {
    System.out.println(num + " is an Armstrong number.");
} else {
    System.out.println(num + " is not an Armstrong number.");
}
}
}

```

PRINT FIBONACCI SERIES

```

public class FibonacciSeries {
    public static void main(String[] args) {
        int num = 10;
        int a = 0;
        int b = 1;
        int c = 0;
        System.out.print(a + " " + b + " ");
        for (int i = 2; i < num; i++) {
            c = a + b;
            System.out.print(c + " ");
            a = b;
            b = c;
        }
    }
}

```

PRINT SWAPPED NUMBERS

```

public class SwapNumbers {
    public static void main(String[] args) {
        int a = 5;
        int b = 10;
        System.out.println("Before swapping: a = " + a + " b = " + b);
    }
}

```

```

int temp = a;
a = b;
b = temp;
System.out.println("After swapping: a = " + a + " b = " + b);
}
}

```

```

public class SwapNumbers {
    public static void main(String[] args) {
        int a = 5;
        int b = 10;
        a = a + b;
        b = a - b;
        a = a - b;
        System.out.println("a: " + a + ", b: " + b);
    }
}

```

PRINT PASCAL'S TRIANGLE

```

public class PascalsTriangle {
    public static void main(String[] args) {
        int rows = 5;
        for (int i = 0; i < rows; i++) {
            int num = 1;
            for (int j = 0; j <= i; j++) {
                System.out.print(num + " ");
                num = num * (i - j) / (j + 1);
            }
            System.out.println();
        }
    }
}

```

PRINT DIAMOND SHAPE

```

public class DiamondShape {
    public static void main(String[] args) {
        int size = 5;
        for (int i = 0; i < size; i++) {
            for (int j = 0; j < size - i - 1; j++) {
                System.out.print(" ");
            }
            for (int j = 0; j <= i; j++) {
                System.out.print("* ");
            }
        }
    }
}

```

```

}
System.out.println();
}
for (int i = size - 2; i >= 0; i--) {
for (int j = 0; j < size - i - 1; j++) {
System.out.print(" ");
}
for (int j = 0; j <= i; j++) {
System.out.print("* ");
}
System.out.println();
}
}
}

```

PRINTING HOLLOW TRIANGLE

```

public class HollowDiamond {
public static void main(String[] args) {
int size = 5;
for (int i = 1; i <= size; i++) {
for (int j = 1; j <= size - i; j++) {
System.out.print(" ");
}
for (int j = 1; j <= 2 * i - 1; j++) {
if (i == 1 || i == size || j == 1 || j == 2 * i - 1) {
System.out.print("*");
} else {
System.out.print(" ");
}
}
System.out.println();
}
}
}

```

PRINT “PRANAV” IN PYRAMID FORM

```

public class PyramidWord {
public static void main(String[] args) {
String word = "PRANAV";
int size = word.length();
for (int i = 0; i < size; i++) {
for (int j = 0; j < size - i; j++) {
System.out.print(" ");
}
for (int j = 0; j <= i; j++) {

```

```
System.out.print(word.charAt(j) + " ");  
}  
System.out.println();  
}  
}  
}
```

HOME WORK: PRINT YOUR NAME....