## 50+ loop Question Monday, July 29, 2024 12:10 AM char charValue = (char)('A' + 5 - 1);for (int i = 5; i >= 1; i--) { **Chapter 1: Basic Loops** for (int j = 5 - i; j > 0; j--) { 1.Print Even Numbers from 1 to 20 System.out.print(" "); iava for (int i = 2; $i \le 20$ ; i += 2) { for (int k = 1; $k \le i$ ; k++) { System.out.println(i); System.out.print(charValue + " "); } **Output:** charValue--; 2. Print Odd Numbers from 1 to 20 System.out.println(); for (int i = 1; $i \le 20$ ; i++) { Output: if (i % 2 != 0) { System.out.println(i); } } EEEEE **Output:** DDDD 3. Sum of Numbers from 1 to 10 CCC java ВВ int sum = 0; Α for (int i = 1; $i \le 10$ ; i++) { **Using Space Method** sum += i; } 26. Multiples of 3 and 5 System.out.println(sum); java **Output:** for (int i = 1; $i \le 20$ ; i++) { 55 if (i % 3 == 0 || i % 5 == 0) { 4. Factorial of a Number (5) System.out.print(i + " "); java } int num = 5; } int factorial = 1; **Output:** for (int i = 1; i <= num; i++) { 3 5 6 9 10 12 15 18 20 factorial \*= i; 27. Printing Squares of Numbers java System.out.println(factorial); for (int i = 1; i <= 5; i++) { **Output:** System.out.println( $i + "^2 = " + (i * i)$ ); 120 } **Output: Chapter 2: Nested Loops** $1^2 = 1$ 6. Print a 3x3 Grid $2^2 = 4$ java $3^2 = 9$ for (int i = 0; i < 3; i++) { $4^2 = 16$ for (int j = 0; j < 3; j++) { $5^2 = 25$ System.out.print("(" + i + "," + j + ") "); 28. Printing Cubes of Numbers } System.out.println(); for (int i = 1; i <= 5; i++) { } System.out.println( $i + "^3 = " + (i * i * i)$ ); **Output:** } (0,0)(0,1)(0,2)**Output:** (1,0)(1,1)(1,2) $1^3 = 1$ (2,0)(2,1)(2,2) $2^3 = 8$ 7. Multiplication Table (1 to 5) $3^3 = 27$ java $4^3 = 64$ Copy code $5^3 = 125$ for (int i = 1; i <= 5; i++) { 20 Summing Evan Numbers

23. Reversed Character Pyramid

```
java
                                          4^3 = 64
Copy code
                                           5^3 = 125
for (int i = 1; i <= 5; i++) {
                                          29. Summing Even Numbers
  for (int j = 1; j <= 5; j++) {
    System.out.print(i * j + "\t");
                                          int total = 0;
                                          for (int i = 2; i \le 10; i += 2) {
  System.out.println();
                                             total += i;
}
                                          }
Output:
                                          System.out.println(total);
Copy code
                                          Output: 30
1
       2
               3
                       4
                               5
2
       4
               6
                       8
                               10
                                          30. Summing Odd Numbers
3
       6
               9
                       12
                               15
                                          java
                               20
4
       8
               12
                       16
                                          Copy code
5
       10
                       20
                               25
               15
                                          int total = 0;
8. Pascal's Triangle
                                          for (int i = 1; i \le 10; i += 2) {
java
                                             total += i;
int rows = 5;
for (int i = 0; i < rows; i++) {
                                          System.out.println(total);
  for (int j = 0; j < rows - i - 1; j++) {
                                           Output: 25
    System.out.print(" ");
                                          31. Sum of Digits Using while Loop
  }
  int value = 1;
                                          int number = 1234;
  for (int j = 0; j <= i; j++) {
                                          int sum = 0;
    System.out.print(value + " ");
                                          while (number != 0) {
    value = value * (i - j) / (j + 1);
                                             sum += number % 10;
                                             number /= 10;
  System.out.println();
                                          }
}
                                          System.out.println(sum);
Output:
                                          Output: 10
  1
                                          32. Reverse of a Number Using while Loop
 11
                                          java
 121
                                          int number = 1234;
1331
                                          int reverse = 0;
14641
                                          while (number != 0) {
9. Print a 5x5 Matrix
                                             reverse = reverse * 10 + number % 10;
java
                                             number /= 10;
for (int i = 1; i <= 5; i++) {
                                          }
  for (int j = 1; j <= 5; j++) {
                                          System.out.println(reverse);
    System.out.print(j + " ");
                                          Output: 4321
                                          33. Counting Vowels in a String
  System.out.println();
                                          java
}
                                          String str = "Hello World";
Output:
                                          int count = 0;
12345
                                          for (int i = 0; i < str.length(); i++) {
12345
                                             char c = str.charAt(i);
12345
                                             if (c == 'A' || c == 'E' || c == 'I' || c == 'O'
12345
                                           || c == 'U' ||
12345
                                               c == 'a' || c == 'e' || c == 'i' || c == 'o' ||
10. Character Grid (A-Z)
                                          c == 'u') {
java
                                               count++;
char ch = 'A';
                                             }
for (int i = 0; i < 3; i++) {
                                          }
```

```
java
                                                count++;
char ch = 'A';
                                             }
for (int i = 0; i < 3; i++) {
                                           }
  for (int j = 0; j < 3; j++) {
                                           System.out.println(count);
    System.out.print(ch + " ");
                                           Output: 3
    ch++;
                                           34. Finding GCD Using Euclidean Algorithm
  }
  System.out.println();
                                           public class GCD {
}
                                             public static void main(String[] args) {
Output:
                                                int a = 56, b = 98;
ABC
                                                while (b != 0) {
DEF
                                                  int temp = b;
GHI
                                                  b = a \% b;
                                                  a = temp;
Chapter 3: Pattern Printing
11. Left-Aligned Pyramid
                                                System.out.println(a);
java
                                             }
Copy code
                                           }
for (int i = 1; i \le 5; i++) {
                                           Output: 14
  for (int j = 1; j <= i; j++) {
                                           35. Finding LCM Using GCD
    System.out.print("*");
                                           java
  }
                                           public class LCM {
  System.out.println();
                                             public static void main(String[] args) {
}
                                                int a = 15, b = 20;
Output:
                                                int gcd = gcd(a, b);
markdown
                                               int lcm = (a * b) / gcd;
Copy code
                                                System.out.println(lcm);
                                             }
                                           public static int gcd(int a, int b) {
                                                while (b != 0) {
                                                  int temp = b;
                                                  b = a \% b;
                                                  a = temp;
12. Inverted Right-Angle Triangle Pattern
java
                                                return a;
for (int i = 5; i >= 1; i--) {
                                             }
  for (int j = 1; j \le i; j++) {
                                           }
    System.out.print("*");
                                           Output: 60
  }
                                           36. Printing Odd Numbers in a Range
  System.out.println();
                                           java
                                           for (int i = 1; i \le 20; i += 2) {
Output:
                                             System.out.print(i + " ");
                                           }
                                           Output: 1 3 5 7 9 11 13 15 17 19
                                           37. Printing Even Numbers in a Range
                                           java
                                           for (int i = 2; i <= 20; i += 2) {
13. Pyramid Pattern
                                             System.out.print(i + " ");
java
                                           }
for (int i = 1; i <= 5; i++) {
                                           Output: 2 4 6 8 10 12 14 16 18 20
  for (int j = 5 - i; j > 0; j--) {
                                           Chapter 5: More Complex Patterns
    System.out.print("");
                                            Reversed Number Triangle
  }
                                           iava
```

```
101 (1111) - 0 1, 1 / 0, 1 / L
                                          Chapter 5: More Complex Patterns
    System.out.print(" ");
                                           Reversed Number Triangle
                                          java
  for (int k = 1; k \le 2 * i - 1; k++) {
                                          for (int i = 5; i >= 1; i--) {
    System.out.print("*");
                                             for (int j = 1; j <= i; j++) {
                                               System.out.print(j);
  System.out.println();
                                             }
}
                                             System.out.println();
Output:
                                          }
markdown
                                          Output
Copy code
                                          12345
                                          1234
 ***
                                          123
                                          12
*****
                                          1
******
Using space Method -
                                          19. Right-Angle Triangle Pattern with
                                           Numbers
                                          java
                                          Copy code
                                          for (int i = 1; i <= 5; i++) {
14. Inverted Pyramid Pattern
                                             for (int j = 1; j <= i; j++) {
java
                                               System.out.print(j);
for (int i = 5; i >= 1; i--) {
  for (int j = 5 - i; j > 0; j--) {
                                             System.out.println();
    System.out.print(" ");
                                          }
  }
                                          Output:
  for (int k = 1; k \le 2 * i - 1; k++) {
                                          yaml
    System.out.print("*");
                                          Copy code
                                          1
  System.out.println();
                                          12
}
                                          123
Output:
                                          1234
******
                                          12345
                                           41. Number Pyramid with Decreasing
 ***
                                                Rows
                                          java
Using Space Method -
                                          Copy code
                                          for (int i = 5; i >= 1; i--) {
15. Diamond Pattern
                                             for (int j = 1; j <= i; j++) {
java
                                               System.out.print(j + " ");
int n = 5;
                                             }
for (int i = 1; i <= n; i += 2) {
                                             System.out.println();
  for (int j = 0; j < (n - i) / 2; j++) {
                                          }
    System.out.print(" ");
                                          Output
                                          Copy code
  for (int k = 0; k < i; k++) {
                                          12345
    System.out.print("*");
                                          1234
                                          123
  System.out.println();
                                          12
}
for (int i = n - 2; i >= 1; i -= 2) {
                                          42. Diamond Pattern with Numbers
```

```
ΙZ
}
                                            1
for (int i = n - 2; i >= 1; i -= 2) {
                                           42. Diamond Pattern with Numbers
  for (int j = 0; j < (n - i) / 2; j++) {
                                           java
    System.out.print(" ");
                                           Copy code
                                           int n = 5;
  for (int k = 0; k < i; k++) {
                                           for (int i = 1; i <= n; i++) {
    System.out.print("*");
                                              for (int j = n - i; j > 0; j--) {
                                                System.out.print(" ");
  System.out.println();
}
                                              for (int k = 1; k <= i; k++) {
Output:
                                                System.out.print(k + " ");
                                              System.out.println();
                                           }
***
                                           for (int i = n - 1; i >= 1; i--) {
                                              for (int j = n - i; j > 0; j--) {
Using Space Method -
                                                System.out.print(" ");
                                              }
16. Hollow Square Pattern
                                              for (int k = 1; k <= i; k++) {
java
                                                System.out.print(k + " ");
int n = 5;
                                              }
for (int i = 0; i < n; i++) {
                                              System.out.println();
  for (int j = 0; j < n; j++) {
                                           }
if (i == 0 || i == n - 1 || j == 0 ||
                                           Output:
j == n - 1) {
                                            markdown
       System.out.print("*");
                                            Copy code
    } else {
                                              1
       System.out.print(" ");
                                             12
    }
                                             123
  }
                                            1234
  System.out.println();
                                            12345
}
                                            1234
Output:
                                             123
                                             12
                                           44. Pyramid with Numbers
                                           java
                                           Copy code
17. Hollow Right-Angle Triangle
                                           for (int i = 1; i <= 5; i++) {
                                              for (int j = 5 - i; j > 0; j--) {
for (int i = 1; i \le 5; i++) {
                                                System.out.print(" ");
  for (int j = 1; j <= i; j++) {
    if (j == 1 || j == i || i == 5) {
                                              for (int k = 1; k <= i; k++) {
       System.out.print("*");
                                                System.out.print(k + " ");
    } else {
       System.out.print(" ");
                                              System.out.println();
    }
                                           }
                                           Output:
  System.out.println();
                                           markdown
}
                                           Copy code
Output:
                                              1
                                             12
```

```
copy code
Output:
                                             1
                                             12
                                            123
                                           1234
                                           12345
                                           45. Inverted Pyramid with Numbers
20. Character Pyramid
                                           java
                                           Copy code
char ch = 'A';
                                           for (int i = 5; i >= 1; i--) {
for (int i = 1; i <= 5; i++) {
                                             for (int j = 5 - i; j > 0; j--) {
  for (int j = 5 - i; j > 0; j--) {
                                                System.out.print(" ");
    System.out.print(" ");
                                             }
  }
                                             for (int k = 1; k <= i; k++) {
  for (int k = 1; k <= i; k++) {
                                                System.out.print(k + " ");
    System.out.print(ch + " ");
                                             }
    ch++;
                                             System.out.println();
  }
                                           }
  System.out.println();
                                           Output:
}
                                           markdown
Output:
                                           Copy code
  Α
                                           12345
 B C
                                           1234
DEF
                                            123
GHIJ
                                             12
KLMNO
                                             1
                                           46. Hollow Diamond Pattern
Chapter 4: Advanced Patterns Characters
21. Upper-Left Triangle Pattern with
                                           Copy code
Incremental Characters
                                           int n = 5;
java
                                           for (int i = 1; i <= n; i++) {
char charValue = 'A';
                                             for (int j = n - i; j > 0; j--) {
for (int i = 1; i <= 5; i++) {
                                                System.out.print(" ");
  for (int j = 1; j <= i; j++) {
    System.out.print(charValue + " ");
                                             for (int k = 1; k \le 2 * i - 1; k++) {
    charValue++;
                                               if (k == 1 | | k == 2 * i - 1) {
  }
                                                  System.out.print("*");
  System.out.println();
                                               } else {
                                                  System.out.print(" ");
Output:
                                               }
Α
ВС
                                             System.out.println();
DEF
                                           }
GHIJ
                                           for (int i = n - 1; i >= 1; i--) {
KLMNO
                                             for (int j = n - i; j > 0; j--) {
                                                System.out.print(" ");
                                             for (int k = 1; k \le 2 * i - 1; k++) {
                                               if (k == 1 | | k == 2 * i - 1) {
                                                  System.out.print("*");
                                               } else {
                                                  System.out.print("");
                                               }
```