**Pre-Programming M-2 Batch**

**Q1] Extract all digit in given number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** Extract\_DIgit {

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.***in***);

System.***out***.println("Enter the number : ");

**int** num = sc.nextInt();

**while** (num > 0) {

**int** rem = num % 10;

System.***out***.println(rem);

num = num / 10;

}

}

}

**Q2] WAP to count no of digit in given number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** Count\_Digti {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number.....");

**int** num = scanner.nextInt();

**int** c = 0;

**while** (num > 0) {

num = num / 10;

c++;

}

System.***out***.println("Total digit in given number is: " + c);

}

}

**Q3]WAP to find the sum of digit in given number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** SumOfDigit {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number.....");

**int** num = scanner.nextInt();

**int** sum = 0;

**while** (num > 0) {

**int** rem = num % 10;

sum = sum + rem;

num = num / 10;

}

System.***out***.println("Total digit in given number is: " + sum);

}

}

**Q4] WAP to find sum of Odd digit in number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** SumOfOddDigit {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number.....");

**int** num = scanner.nextInt();

**int** sum = 0;

**while** (num > 0) {

**int** rem = num % 10;

**if**(rem % 2 != 0)

sum = sum + rem;

num = num / 10;

}

System.***out***.println("Total digit in given number is: " + sum);

}

}

**Q5] WAP to find sum of all even digit in number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** SumOfEvenNumber {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number.....");

**int** num = scanner.nextInt();

**int** sum = 0;

**while** (num > 0) {

**int** rem = num % 10;

**if** (rem % 2 == 0)

sum = sum + rem;

num = num / 10;

}

System.***out***.println("sum of even number digit is : " + sum);

}

}

**Q6] WAP to check number is Spy or not**

Spy number means : sum of digit == product of digit

Ex] 123 => spy number

1+2+3 = 6 ==========🡺 sum

1\*2\*3=6 ==========🡺 product

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** SpyNumber {

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.***in***);

System.***out***.println("Enter the numbe:");

**int** num = sc.nextInt();

**int** sum = 0;

**int** pro = 1;

**while** (num > 0) {

**int** rem = num % 10;

sum = sum + rem;

pro = pro \* rem;

num = num / 10;

}

**if**(sum == pro) {

System.***out***.println("Number is Spy number");

}**else** {

System.***out***.println("Number is not Spy number");

}

}

}

**Q7] WAP to find Factorial of given number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** FactorialNumber {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number");

**int** num = scanner.nextInt();

**long** fact = 1;

**for** (**int** i = 1; i <= num; i++) {

fact = fact \* i;

}

System.***out***.println("Factorial of " + num + " is " + fact);

}

}

**Q8] find the factorial of each digit in given number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** FactorialOfEachDigitInNuber {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the Number");

**int** num = scanner.nextInt();

**int** fact = 1;

**while** (num > 0) {

**int** rem = num % 10;

**for** (**int** i = 1; i <= rem; i++) {

fact = fact \* i;

}

System.***out***.println("Factorial of " + rem + " is " + fact);

num = num / 10;

}

}

}

**Q9] find the factor of given number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** FactorOfNumber {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number to find the factor");

**int** num = scanner.nextInt();

System.***out***.print("Factor of the " + num + " : ");

**for** (**int** i = 1; i <= num; i++) {

**if** (num % i == 0) {

System.***out***.print(i + " ");

}

}

}

}

**Q10] Find the factor of given digit in number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** FactorofEachDigit {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number");

**int** num = scanner.nextInt();

**while** (num > 0) {

**int** rem = num % 10;

System.***out***.print("Factor of " + rem + " : ");

**for** (**int** i = 1; i <= rem; i++) {

**if** (rem % i == 0) {

System.***out***.print(i + " ");

}

}

num = num / 10;

System.***out***.println();

}

}

}

**Q11] find the total factor of given digit**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** TotalFactorOfGivenNumber {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number : ");

**int** num = scanner.nextInt();

**int** count = 0;

**for** (**int** i = 1; i <= num; i++) {

**if** (num % i == 0) {

count++;

}

}

System.***out***.println("Total Factor of the " + num + " is " + count);

}

}

**Q12] find the number is prime or not**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** PrimeNumber {

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.***in***);

**int** num = sc.nextInt();

**int** c = 1;

**for** (**int** i = 2; i <= num; i++) {

**if** (num % 2 == 0) {

c++;

}

}

**if** (c == 2) {

System.***out***.println("Number is Prime number");

} **else** {

System.***out***.println("Number is not prime number");

}

}

}

**Q13] find the prime number between o to 100**

**package** preprogramingM1;

**public** **class** PrimeNumberBetweenNumbers {

**public** **static** **void** main(String[] args) {

System.***out***.println("Prime number between 1 to 100");

**for** (**int** i = 1; i <= 100; i++) {

**int** c = 0;

**for** (**int** j = 1; j <= i; j++) {

**if** (i % j == 0) {

c++;

}

}

**if** (c == 2) {

System.***out***.println(i);

}

}

}

}

**Q14] find the reverse number of given number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** ReverseNumber {

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.***in***);

System.***out***.println("Enter the number");

**int** num = sc.nextInt();

**int** rev = 0;

**int** num1 = num;

**while** (num > 0) {

**int** rem = num % 10;

rev = rev \* 10 + rem;

num = num / 10;

}

System.***out***.println("Reverse number of " + num1 + " is " + rev);

}

}

**15] check the number is palindrome or not**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** PalindromeNumber {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number : ");

**int** num = scanner.nextInt();

**int** num1 = num;

**int** rev = 0;

**for** (**int** i = num; i > 0; i = i / 10) {

**int** rem = num % 10;

rev = rev \* 10 + rem;

num = num / 10;

}

**if** (rev == num1) {

System.***out***.println("Number is palindrome");

} **else** {

System.***out***.println("Number is not palindrome");

}

}

}

**16] WAP program to check number is perfect or not**

**Perfect number = sum of factor of given number expect it is called as perfect number**

**Ex : 4 -> 1,2 1+2 = 3 =🡺 not perfect number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** PerfectNumber {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number: ");

**int** num = scanner.nextInt();

**int** sum = 0;

**for** (**int** i = 1; i < num; i++) {

**if** (num % i == 0) {

sum = sum + i;

}

}

**if** (sum == num) {

System.***out***.println("perfect number..........");

} **else** {

System.***out***.println("not perfect Number............");

}

}

}

**16] WAP to find perfect number between 1 to 700**

**package** preprogramingM1;

**public** **class** PefectNumberBetweenTwoNumber {

**public** **static** **void** main(String[] args) {

System.***out***.println("perfect number between 1 to 700 is :");

**for** (**int** num = 1; num < 700; num++) {

**int** sum = 0;

**for** (**int** i = 1; i < num; i++) {

**if** (num % i == 0) {

sum = sum + i;

}

}

**if** (num == sum) {

System.***out***.println(num);

}

}

}

}

**17] WAP to given number is strong number or not**

**Factorial of each digit in the number is equal to number is called as strong number**

**Ex : 145 ==== 1 => 1**

**4 => 24 1+24+120 = 145 this is strong number**

**5=>120**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** StrongNumber {

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.***in***);

System.***out***.println("Enter the number");

**long** num = sc.nextLong();

**long** num1 = num;

**long** sum = 0;

**while** (num > 0) {

**long** rem = num % 10;

**long** fact = 1;

**for** (**int** i = 1; i <= rem; i++) {

fact = fact \* i;

}

sum = sum + fact;

num = num / 10;

}

**if** (sum == num1) {

System.***out***.println("Strong number.........");

} **else** {

System.***out***.println("not strong number......");

}

}

}

**18] WAP to find power of given base value**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** Power {

**public** **static** **void** main(String[] args) {

**int** base = 2;

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number");

**int** num = scanner.nextInt();

**int** pow = 1;

**for** (**int** i = 1; i <= num; i++) {

pow = pow \* 2;

}

System.***out***.println("Power of " + num + " is " + pow);

}

}

**19] WAP to find GCD for given value :**

**GCD means**

**Example : n1 = 6 ---------------🡪 1,2,3,6**

**n2 = 12------------🡪 1, 2, 3 ,4,6,12**

**GCD ===🡺 1,2,3,6**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** GcdNumbers {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number : ");

**int** n1 = scanner.nextInt();

System.***out***.println("Enter the number : ");

**int** n2 = scanner.nextInt();

System.***out***.println("all GCD number of " + n1 + " and " + n2);

**for** (**int** i = 1; i <= n1 && i <= n2; i++) {

**if** (n1 % i == 0 && n2 % i == 0) {

System.***out***.print(i + " ");

}

}

}

}

**20] WAP to check number is Armstrong number or not**

**Example : -**

**A ] find total digit in number**

**b] Extract digit and find pow of each digit**

**c] add the each digit power**

**num = 145**

**5 ===🡺 5 \* 5 \* 5 == 125**

**4 \* 4 \* 4 == 64 total is :=====190**

**1 \* 1 \* 1== 1**

**190 == 145 =======🡺 no Armstrong number**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** ArmstorngNumber {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the number");

**int** num = scanner.nextInt();

**int** temp = num;

**int** count = 0;

**int** sum = 0;

**for** (**int** i = num; i > 0; i = i / 10) {

count++;

}

System.***out***.println(count);

**while** (num > 0) {

**int** rem = num % 10;

**int** pow = 1;

**for** (**int** i = 1; i <= count; i++) {

pow = pow \* rem;

}

sum = sum + pow;

num = num / 10;

}

**if** (sum == temp) {

System.***out***.println("Number is Amrostorng number");

} **else** {

System.***out***.println("Number is not armostorng number");

}

}

}

**21 ] WAP to find the square root of given number :**

**package** preprogramingM1;

**import** java.util.Scanner;

**public** **class** SquareRoot {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter the numbdr ");

**int** num = scanner.nextInt();

**for** (**int** i = 1; i < num / 2; i++) {

**if** ((i \* i) == num) {

System.***out***.println("Square root is : " + i);

**break**;

} **else** **if** (i \* i > num) {

System.***out***.println("square is in decimal format");

**break**;

}

}

}

}

**Pattern Program**

1] WAP to print following pattern

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**public** **class** PatternType2 {

**public** **static** **void** main(String[] args) {

**int** num = 5;

System.***out***.println(

"===================================== Left Upper Trangle =========================================");

**for** (**int** i = 1; i <= num; i++) {

**for** (**int** j = 1; j <= num; j++) {

**if** (j <= i)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

}

}

**2] WAJP to print following Pattern**

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System.***out***.println(

"===================================== Right Upper Trangle =========================================");

**for** (**int** i = 1; i <= num; i++) {

**for** (**int** j = 1; j <= num; j++) {

**if** (j + i >= num + 1)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

**3] WAJP to print following pattern**

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System.***out***.println(

"===================================== Left Down Trangle =========================================");

**for** (**int** i = 1; i <= num; i++) {

**for** (**int** j = 1; j <= num; j++) {

**if** (i + j <= num + 1)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

**4] WAJP to print following pattern**

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System.***out***.println(

"===================================== Right Down Trangle =========================================");

**for** (**int** i = 1; i <= num; i++) {

**for** (**int** j = 1; j <= num; j++) {

**if** (j >= i)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

**5] WAJP to print following pattern**

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System.***out***.println(

"===================================== (Left Down Trangle) + (Right Down Trangle) =========================================");

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** (i + j <= num + 1 || j - i >= num - 1)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

6] WAJP to print following pattern

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System.***out***.println(

"===================================== (Right Upper Trangle) + (Left Upper Trangle) =========================================");

**for** (**int** i = 1; i <= num; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** (i + j >= num \* 2 || i >= j)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

7] WAJP to print following pattern

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System.***out***.println(

"===================================== (Left Down Trangle) + (Left Upper Trangle) =========================================");

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num; j++) {

**if** (i + j <= num + 1 || i - j >= num)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

8] WAJP to print Following pattern

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System.***out***.println(

"===================================== (Rigth Down Trangle) + (Rigth Upper Trangle) =========================================");

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num; j++) {

**if** (j >= i || i + j >= num \* 2)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

**9] WAJP to print following pattern**

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System.***out***.println("================================Upper prymid======================");

**for** (**int** i = 1; i <= num; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** (i + j >= num + 1 && j - i <= num - 1) {

System.***out***.print(" \* ");

} **else** {

System.***out***.print(" ");

}

}

System.***out***.println();

}

Q10] WAJP to print following pattern

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System.***out***.println("================================ Down prymid==========================================");

System.***out***.println();

**for** (**int** i = 1; i <= num; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** (i <= j && i + j <= num \* 2)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

**Q11] WAJP to print following pattern**

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System.***out***.println("================================ Left prymid==========================================");

System.***out***.println();

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num; j++) {

**if** (i >= j && i + j <= num \* 2)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

**Q12] WAJP to print following pattern**

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System.***out***.println("================================ Right prymid==========================================");

System.***out***.println();

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num; j++) {

**if** (i + j >= num + 1 && i - j <= num - 1)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

**14] WAJP to print following pattern**

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System.***out***.println("================================ Square ==========================================");

System.***out***.println();

**for** (**int** i = 1; i <= num; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** (i + j <= num \* 2 && i + j >= num + 1)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

15] WAJP to print following pattern

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System.***out***.println();

System.***out***.println("================================ Diamond ==========================================");

System.***out***.println();

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** (i + j >= num + 1 && j - i <= num - 1 && i - j <= num - 1 && i + j <= num \* 3 - 1)

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

16] WAJP to print following pattern

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System.***out***.println("================================ Butterfly ==========================================");

System.***out***.println();

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** ((i >= j && i + j <= num \* 2) || (i + j >= num \* 2 && j >= i))

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

17] WAJP to print following pattern

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System.***out***.println();

System.***out***.println("================================ Butterfly ==========================================");

System.***out***.println();

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** ((j >= i && i + j <= num \* 2) || (j <= i && i + j >= num \* 2))

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}

18 ] WAJP to print following pattern

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System.***out***.println("================================ sastik ==========================================");

System.***out***.println();

**for** (**int** i = 1; i <= num \* 2 - 1; i++) {

**for** (**int** j = 1; j <= num \* 2 - 1; j++) {

**if** (i == num || j == num || (i == 1 && j >= num) || (i == num \* 2 - 1 && j <= num)

|| (j == 1 && i <= num) || (j == num \* 2 - 1 && i >= num))

System.***out***.print(" \* ");

**else**

System.***out***.print(" ");

}

System.***out***.println();

}