



# GREENWOOD HIGH SCHOOL, BANNERGHATTA

## PRACTICAL RECORD PROGRAM LIST - 1

SUBJECT: COMPUTER APPLICATIONS

GRADE: X

DATE OF ISSUE: 27<sup>th</sup> March 2023

DATE OF SUBMISSION: 26<sup>th</sup> May, 2023

### Instructions:

- The students must execute and run the Java programs mentioned below.
- The program must contain comments wherever necessary.
- The Java programs must be documented in a Practical Record Book which will comprise of the **program code on the ruled side** and **Variable description and output on the blank side**. (Instructions to write in Practical Record book was mentioned during the class).
- Each program must include the Program question and each page in the Record book must be numbered.
- The Practical Record book submitted will be checked periodically throughout the Academic Year.
- Untidy work will not be accepted for correction.
- The file is uploaded in MS Teams for reference under the Assignment **PRACTICAL RECORD – while loop, do-while loop and nested loops**.
- The Practical Record must be submitted on 26<sup>th</sup> May, 2023.
- **Please note:** Failure to submit the Practical Record work as scheduled will be subject to deduction of marks which is part of the Internal Assessment Marking for the upcoming Academic Year.

### LOOPS(while, do-while and Nested loops)

1. WAP to enter a number and reverse its digits.
2. Write a program to enter two numbers and find the GCD(Greatest common Divisor) of those numbers  
**Sample Input:** 25, 45  
**Sample Output:** The GCD of 25 and 45 is 5
3. Write a program to input a three-digit number. Display the sum of its digits raised to the power of its respective position.  
**Sample Input:** 465  
**Sample Output:**  $\text{Sum} = 5^1 + 6^2 + 4^3 = 5 + 36 + 64 = 105$
4. Write a program to input a number. Check and display whether it is Niven Number or not. (A number is said to be a Niven number if it is divisible by the sum of its digits).  
**Sample Input:** 126  
**Sum of digits:**  $1+2+6 = 9$  and 126 is divisible by 9
5. Write a program to enter a Number and check whether the number is Neon or not. (A number is said to be 'Neon' if sum of the digits of the square of the number is equal to the number itself).  
**Sample Input:** 9 ; **Sample Output:**  $9*9 = 81, 8+1 = 9$ . Therefore 9 is a Neon number.



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6. Write a program in Java to enter a number and check whether the number is an Armstrong number or not.

*(A number is said to be 'Armstrong' if sum of the cubes of its digits is equal to the original number).*

**Sample Input:** 153

**Sample Output:**  $1^3 + 5^3 + 3^3 = 153$ . Therefore 153 is an Armstrong number.

**For example,** 11,101,131,151,.....

7. Write a program to input a number. Display the product of the successors of even digits of the number entered by the user.

Sample Input: 2475

Sample Output: 15

Here, the even digits are 2 and 4. Their successor digits are 3 and 5, hence  $3*5 = 15$

8. Write a program to enter two numbers and check whether they are co-prime or not.

Hint: Two numbers are said to be co-prime if their HCD F is 1.

**Sample input :** 14, 15

**Sample output :** They are co-prime

9. Write a program to input a number and check if it is a Pronic number or not. A number is said to be a Pronic number if it is the product of two consecutive integers.

**Example:**  $12 = 3*4$ ,  $20 = 4*5$  etc.

### NESTED LOOPS

10. Write a program to display all prime palindrome numbers between 10 and 1000.

**Hint:** A number which is both prime and a palindrome is said to be a Prime Palindrome number.

11. An **Automorphic Number** is a number which is contained in the last digit(s) of its square.

Write a program to input a number and check whether the number is an 'Automorphic number' or not.

**Sample Input:** 25

**Sample Output:** The square of 25 is 625 and 25 is present as the two digits. Therefore, 25 is an Automorphic number.

12. Write a program to input a number and print whether the number is a 'Special number' or not. *A number is said to be a special number if the sum of the factorial of the digits of the number is the same as the original number.*

**Sample Input:** 145

**Sample Output:**  $1! + 4! + 5! = 1 + 24 + 120 = 145$ . Therefore, 145 is Special number

13. WAP to compute the sum of the following series:

a.  $S = 1 + (1+2) + (1+2+3) + \dots (1+2+3+\dots+n)$

b.  $S = 1 + \frac{3}{2!} + \frac{5}{3!} + \frac{7}{4!} + \dots \text{to } n$

c.  $S = a - \frac{a}{2!} + \frac{a}{3!} - \frac{a}{4!} + \dots \text{to } n$



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d.  $\frac{x^1}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots + \frac{x^n}{n!}$

e.  $\frac{1}{1+2} + \frac{1}{1+2+3} + \frac{1}{1+2+3+4} + \dots + \frac{1}{1+2+3+4+\dots+n}$

f.  $1 + \frac{1+2}{1*2} + \frac{1+2+3}{1*2*3} + \frac{1+2+3+4}{1*2*3*4} + \dots + \frac{1+2+3+\dots+n}{1*2*3*4*\dots*n}$

g.  $\frac{x!}{10} + \frac{(x+2)!}{15} + \frac{(x+4)!}{20} + \dots + \frac{(x+n)!}{m}$

14. Write a program to print the following patterns:

a. \*

  

```

*      *
*      *      *
*      *      *      *
*      *      *      *      *
```

b. 1

```

1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

c. 9

```

7      9
5      7      9
3      5      7      9
1      3      5      7      9
```

15. Write a program to print the following patterns.

a. 1 2 3 4 5

```

1 2 3 4
1 2 3
1 2
1
```

b. 15 14 13 12 11

```

10 9 8 7
6 5 4
3 2
1
```



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c. 1 2 3 4 5  
6 7 8 9  
10 11 12  
13 14  
15

16. Using a switch statement, write menu-driven program for the following:

a. To print the Flyod's triangle

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

b. To display Patter 2

```
1
1 0
1 0 1
1 0 1 0
1 0 1 0 1
```

c. To display Pattern 3

```
$
$ #
$ # $
$ # $ #
$ # $ # $
```

d. To display pattern 4

```
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
```