17/09/24

) write a java program to create a class called student with a constructor that takes in a name, ID number

psoudo code:

```
Class student :
    variables:
        name (string)
        id name(integer)
        grades(list of integes)
    constructor:
      input: name, idnumber, grades (list of integers)
      set this-name = name
      set this.idname = id number
      set this.grades = grades
   Method calculateAverage ( ):
      initialize sum=0
      for each grade in grades:
          Add grade to sum
      Return sum/ number of grades
        call calculateAverage( );
          and store the result in average
          If average >= 90:
            Return "A"
   Else If average >= 80:
         Return "B"
```

2) Sorting program

Pseudo code

-> ·Define a function sortArray ·tha
accepts·a list· or array·of integers.

- Repeat (n-1) times (where n is the si
of the array).

- for·each·element ·from ·the start to
second-to-last-element.

```
for (int i=0; i<n-1; i++)
 for (int j=0; j<n-i-1; j++)
```

main function:

An example array is provided.
the sortarray function is called to
sort the array

3) min and max Array

-> ·Define afunction find minand max the accepts an array of integers

-> initialize min with the first element of the array.

-> initialize max with the first element of the array.

[illegible] less than min, update min

[illegible]

[illegible] is greater than max, update max.

→ After the loop, return max

array

→ second minori max in array

→ Define a function find second min and Max that accepts an array of integers.

→ Initialize min and secondmin with the largest possible value (int max)

→ Initialize max and second max with the smallest possible value

→ After the loop, return secondmin and second Max.

for (int i=0; i<arr.length; i++)

→ call the find second and min and Max function with the array

Scanned by Scanner Go

5) pattern

→ Define a function print pattern that accepts n (number of rows)

→ loop i from 1 to n

→ loop j from 1 to i:

- print without a newline

→ After the inner loop, print a new line

6) Armstrong number

→ Define a function isArmstrongnumbe that accepts an integer n.

→ initialize sum to 0 to store the su of the digits raised to the power.

→ store the oringinal value of n in a variable temp.

→ find the number of digits in n

→ Extract the last digits of n using digit = n % 10

Add to value of digit ^ num Digits to sum

remove the last digits from n using n = n / 10.

→ After. the loop, mp

, if sum == temp, return True.
indicating. that it's. an Armstrong number.

7) palindrome number

→ Define a function ispalindromeNumber that accepts an integer. n.

→ store the original value. of n in a variable. temp.

→ initialize reversed to 0 to store the reversed number

→ Extract. the last. digit of n using . digit. = n%10.

→ Multiply. reversed by 10 and add digit. to it.

→ Remove the last digit . from n using . n = n/10;

8) perfect number

declare. the variable. i, sum

get the imput number from the user

find all the factors of the given

number using for and if

```
    for (i=1, i<=n, i++)
    if (n%i == 0)
    add i to sum
  sum is equall to given number then
it is perfect number".
```

9) finding the volume of sphere

pseudo code :-

```
  declare the scanner class
  get the value of radius from the
  user,
declare. a variable volume (double)
    volume = (Math.PI * (4/3) * r*r*r
  print the value of volume
```

10) power

declare the scanner class to get the input get power(base, exponent) that accepts two integers, base and exponent.

-> Initialize a variable result of to 1. this will store the final res ult

```
-> for
 -> Multiply. result by base
  -> Result .the result.
```

Day 1:

Aim:- that demonstrates the use of primitive data types.

Pseudo Code

```
-> Define a function demonstrate primitive Data Types.
-> byte b = 10;
   short s = 1000;
   int i = 100;
   long l = 10000L;
   float f = 3.14F;
   double d = 3.141;
   char c = 'A';
   boolean boolTrue = true;
   boolean boolfalse = false;
-> print the values of each of the
     data types
-> End the function
```

12) Aim :- to write a Data type Con
sion . Demonstration

Pseudo code

```
-> Define . afunction demonstration Co
   sion().
   byte value = 10
   short value . = bytevalue
   int value = short value
   long value = . int value
   float . value = . longvalue
   doublevalue = floatvalue
   double val = . 12345.678
   floatval = (float) doubleval
   longval = (long) floatval
   intval = (int) . longval
   shortval = . (short) . intval
   byteval = (byte) shortval
-> print . all converted values.
-> print the overflowed float value.
-> End . the function.
```

Aitn: ctor s

eudo code :~

```
efime a function demonstrate string
ethods and constructors()
string from a string literal.
 str1 = "Hello, world"
 charArray = ['H','e','l','l','o']
 str2 = new string(charArray)
 byteArray = [10, 20, 30, 40, 50]
 str3 = new string(byte Array)
 str4 = new string (byteArray)
 length = str1.length()
 substring = str1.substring(0,5)
 upperCase = str1.toupper case()
 lowercase = str1.tolower.case(
 replaced = str1.replace ('o','0')
 trimmed = " Hello, world! ".
 contains = str1.contains ("worl
 is Equal = str1.equals (" Hello
                           world!")
Print " is str1 equal to " He
```

4) Aim:- to write String Builder v

String Buffer

Pseudo code

```
Define a function. demonstrate string
Builder And string Buffer()
  - Initialize string Builder object
      sb = new string Builder()
  - Append String
     sb.append ("Hello ~~world~~")
     sb.append (" ")
     sb.append ("world")
  - print the result
  string Buffer:
     initialize string Buffer
        sbf = new stringBuffer ()
     Append strings to string Buffer
        sbf.append ("Hello")
        sbf.append (" ")
     sbf.append ("world")

     print the result of string
            Buffer
```

Aim:

matrices

Pseadocode:-

```
Define a function Create And print
Matrices()
initialize matrixA and matrixB as
  2x9 matrices.
-> matrix A = 2x9 matrix
=> matrix B = 2x9 matrix
first ROW of matrixA
  for i=0 to 8:
  matrix A[0][i] = i+1
  second ROW of matrixA
    for i=0 to 8:
    matrix A[1][i]= matrix A[0][8-i]
  first ROW of matrix B
      for i=0 to 8:
      matrix B[0][i]= 9-i
    for i=0 to 8:
    matrixB[1][i] - matrix B[0][8-i]
      matrix A:-
        for i=0 to 1:
          for i=0 to 1:
```

16) Aim:- to write pseudocode for prin
ing 1 to 9 using for loop and
store in matrix!

Pseudocode:-

```
create Matrix A with dimension 1x9
create matrix B with dimension 1x9
for i in range from 0 to 8
    set matrix from A[0][i] to i+1
for i in range from 9 to 1
    set matrix B[0][i] to i
for i from 0 to 8
    print matrix A[0][i]
for i from 9 to 1
    print matrix B[0][i].
```

17) Aim:- To write Java program
for creating a 2D array

Pseudo code

```
    initialize
        i=3
        j=3
```

```
for i in
  for j in range from 0 to 3
    matrix 1 [i] [j] = i
```

using the for loop. print. the 2D array

```
for (i=0; i<3; i++)
 for (j=0; j<3; j++)
   print (matrix = [i] [j]);
  print ("\n");
```