JADAVPUR UNIVERSITY

ADVANCED PROGRAMMING (JAVA AND PYTHON)
LAB ASSIGNMENTS

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JAVA ASSIGNMENT 1:

1. **Write a program to accept two short integers from user and display the sum.**

SOURCE CODE:

```
import java.util.Scanner;

public class ass1_01 {
    public static void main(String args[]) {
        short num1, num2;
        int sum;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter First number: ");
        num1 = sc.nextShort();
        System.out.println("Enter Second number: ");
        num2 = sc.nextShort();
        sc.close();
        sum = num1 + num2;
        System.out.println("Sum of these numbers: " + sum);
    }
}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_01.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_01
Enter First number:
10
Enter Second number:
20
Sum of these numbers: 30
```

2. **Write a program that accepts number of command line parameters and displays the parameters and count of such parameters.**

SOURCE CODE:

```
public class ass1_02 {
    public static void main(String args[]) {
        if (args.length == 0)
            System.out.println("No argument passed!!!");
        else {

            System.out.println("The number of command line argument: " + args.length);
            System.out.println("The command line parameters: ");
            for (int i = 0; i < args.length; i++) {
                System.out.println(args[i]);
            }
        }
    }
}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_02.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_02
No argument passed!!!

PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_02.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_02 A B C
The number of command line argument: 3
The command line parameters:
A
B
C
```

3. **Write a program that accepts height in cm as int and displays the height in feet and inches. Assume, 1 inch equals to 2.54 cm and 1 foot equals to 30.5 cm.**

SOURCE CODE:

```
import java.util.Scanner;
public class ass1_03 {
    public static void main(String args[]) {
        int cm;
        double inch,foot;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter height in cm: ");
        cm=sc.nextInt();
        inch=cm/2.54;
        foot=cm/30.5;
        sc.close();
        System.out.println("The height in inch: "+inch);
        System.out.println("The height in foot: "+foot);

    }
}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_03.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_03
Enter height in cm:
20
The height in inch: 7.874015748031496
The height in foot: 0.6557377049180327
```

4. **Write a program that accepts radius of a circle and displays area of the circle. Declare a constant pi equals to 3.14.**

SOURCE CODE:

```
import java.util.Scanner;
public class ass1_04 {
    public static void main(String args[]) {
```

```
        final double pi=3.14;
        double r,area;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter radius of the circle: ");
        r=sc.nextDouble();
        area=pi*r*r;
        sc.close();
        System.out.println("Area of the circle is: "+area);

    }
}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_04.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_04
Enter radius of the circle:
5
Area of the circle is: 78.5
```

5. **Write a program that accepts a String and assigns it to another. Check the outcome of comparison with == and equals() method. Take two Strings and put same input for them. Repeat the equality checking. Observe the outcome.**

SOURCE CODE:

```
import java.util.Scanner;
public class ass1_05 {
    public static void main(String args[]) {
        String s1,s2;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter a string: ");
        s1=sc.nextLine();
        s2=s1;
        System.out.println(s1==s2); //true
        System.out.println(s1.equals(s2)); //true

        System.out.println("Enter first string: ");
        s1=sc.nextLine();
        System.out.println("Enter second string(same as first): ");
        s2=sc.nextLine();
        System.out.println(s1==s2); //false because it compares the address of the strings
        System.out.println(s1.equals(s2)); //true because it compares the content
        sc.close();

    }

}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_05.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_05
Enter a string:
```

```
shruti
true
true
Enter first string:
abc
Enter second string(same as first):
abc
false
true
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_05
Enter a string:
mno
true
true
Enter first string:
xyz
Enter second string(same as first):
stu
false
false
```

6. **Write a program where class contains void show(int) to display the argument passed. Call the function once with short as actual parameter and again double as actual parameter. Add another function as void show(double). Repeat the calls. Observe the outcomes in each case.**

SOURCE CODE:

```
import java.util.Scanner;
public class ass1_06 {
    static void show(int n)
    {
        System.out.println(n);
    }
    static void show(double n)
    {
        System.out.println(n);
    }
    public static void main(String args[]) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter a short value: ");
        short a=sc.nextShort();
        System.out.println("Enter a double value: ");
        double b=sc.nextDouble();
        show(a);
        show(b);
        sc.close();
    }

}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_06.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_06
Enter a short value:
10
Enter a double value:
25.5
10
25.5
```

7. **Design and implement Student class with roll, name and score as attributes. It will have methods to set attributes (attribute values passed as arguments), display the attributes, copy (that copies the content of invoking object to another object passed as argument). Verify that methods are working properly.**

SOURCE CODE:

```
public class ass1_07 {
    static class Student{
        int roll;
        String name;
        double score;

        public void set(int r,String n,double s){
            roll=r;
            name=n;
            score=s;

        }

        public void display(){
            System.out.println("Student details: ");
            System.out.println("Roll: "+roll);
            System.out.println("Name: "+name);
            System.out.println("Score: "+score);
            System.out.println("");
        }

        public void copy(Student s){
            s.roll=roll;
            s.name=name;
            s.score=score;
        }
    }

    public static void main(String args[]) {
        Student s= new Student();
        Student s1 = new Student();
        s.set(21, "Shruti Pathak", 50);
        s.display();
```

```
        s.copy(s1);
        System.out.println("After copy: ");
        s1.display();
    }
}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_07.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_07
Student details:
Roll: 21
Name: Shruti Pathak
Score: 50.0

After copy:
Student details:
Roll: 21
Name: Shruti Pathak
Score: 50.0
```

10. Design a Metric class that supports Kilometre to Mile conversion with distance in Kilometre as argument and Mile to Kilometre conversion with distance in mile as argument. Assume, one Mile equals 1.5 Kilometre.

SOURCE CODE:

```
import java.util.Scanner;
public class ass1_10 {
    static class Metric{
        double km,mile;
        public double km_to_mile(double km) {
            return km/1.5;
        }
        public double mile_to_km(double m) {
            return m*1.5;
        }
    }
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Metric d=new Metric();
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter distance in Kilometer: ");
        d.km=sc.nextDouble();
        System.out.println("Distance in Miles: "+d.km_to_mile(d.km));
        System.out.println("Enter distance in mile: ");
        d.mile=sc.nextDouble();
        System.out.println("Distance in kilometer: "+d.mile_to_km(d.mile));
        sc.close();
    }

}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> javac ass1_10.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS1> java ass1_10
Enter distance in Kilometer:
5
Distance in Miles: 3.3333333333333335
Enter distance in mile:
10
Distance in kilometer: 15.0
```

JAVA ASSIGNMENT 2:

1. Each customer of a bank has customer id, name, and current loan amount and phone number. One can change the attributes like name, phone number. A customer may ask for loan of certain amount. It is granted provided the sum of current loan amount and asked amount does not exceed credit limit (fixed amount for all customer). A customer may be a privileged amount. For such customers credit limit is higher. Once a loan is sanctioned necessary updates should be made. Any type of customer should be able to find his credit limit, current loan amount and amount of loan he can seek.

Design and implement the classes.

SOURCE CODE:

```
import java.util.Scanner;

public class ass2_01 {
    int cid;
    String cname;
    double cloan;
    int cphone;
    static double credit;
    static Scanner sc=new Scanner(System.in);

    void set()
    {
        System.out.println("Enter customer id: ");
        cid=sc.nextInt();
        System.out.println("Enter customer name: ");
        cname=sc.next();
        System.out.println("Enter customer phone no: ");
        cphone=sc.nextInt();
        System.out.println("Enter customer current loan amount: ");
        cloan=sc.nextDouble();
    }
    void view()
    {
        System.out.println("Customer Details:");
        System.out.println("Customer id: "+cid);
```

```
        System.out.println("Customer name: "+cname);
        System.out.println("Customer phone no: "+cphone);
        System.out.println("Customer current loan amount: "+cloan);

    }
    void set_credit()
    {
        System.out.println("Enter the credit limit: ");
        credit=sc.nextDouble();
    }
    void name_change()
    {
        System.out.println("Enter new customer name: ");
        cname=sc.next();
    }
    void phoneno_change()
    {
        System.out.println("Enter new customer phone no: ");
        cphone=sc.nextInt();
    }
    void ask_loan()
    {
        System.out.println("Enter the loan amont: ");
        double loan=sc.nextDouble();
        if((loan+cloan)>credit)
            System.out.println("Exceed credit limit, loan cannot be sanctioned!!!");
        else
        {
            System.out.println("Loan is sanctioned!!!");
            cloan=cloan+loan;
            System.out.println("Your total loan amount is: "+cloan);
        }
    }
    void check_credit()
    {
        System.out.println("Your credit value is: "+credit);
        System.out.println("Your current loan amount is: "+cloan);
        if(cloan>=credit)
            System.out.println("Credit limit reached, You can not seek more amount of loan!!!");
        else
            System.out.println("Amount of loan, you can seek: "+(credit-cloan));
    }



    public static void main(String[] args) {
        // TODO Auto-generated method stub
        ass2_01 cust1=new ass2_01();
        cust1.set_credit();
        cust1.set();
        cust1.view();
        System.out.println("Do you want to change the name of the customer(TRUE or FALSE)?");
        boolean ch=sc.nextBoolean();
        if(ch)
            cust1.name_change();
        System.out.println("Do you want to change the phone no of the customer(TRUE or FALSE)?");
        ch=sc.nextBoolean();
        if(ch)
```

```
            cust1.phoneno_change();
        cust1.ask_loan();
        cust1.check_credit();

        System.out.println("\nFor privilleged customer!");
        privilleged cust2=new privilleged();
        cust2.set_credit();
        cust2.set();
        cust2.view();
        System.out.println("Do you want to change the name of the customer(TRUE or FALSE)?");
        ch=sc.nextBoolean();
        if(ch)
            cust2.name_change();
        System.out.println("Do you want to change the phone no of the customer(TRUE or FALSE)?");
        ch=sc.nextBoolean();
        if(ch)
            cust2.phoneno_change();
        cust2.ask_loan();
        cust2.check_credit();

    }

}
class privilleged extends ass2_01
{
    static double credit;
    void set_credit()
    {
        System.out.println("Enter the credit limit for privilleged customer: ");
        credit=sc.nextDouble();
    }
    void ask_loan()
    {
        System.out.println("Enter the loan amont: ");
        double loan=sc.nextDouble();
        if((loan+cloan)>credit)
            System.out.println("Exceed credit limit, loan cannot be sanctioned!!!");
        else
        {
            System.out.println("Loan is sanctioned!!!");
            cloan=cloan+loan;
            System.out.println("Your total loan amount is: "+cloan);
        }
    }
    void check_credit()
    {
        System.out.println("Your credit value is: "+credit);
        System.out.println("Your current loan amount is: "+cloan);
        if(cloan>=credit)
            System.out.println("Credit limit reached, You can not seek more amount of loan!!!");
        else
            System.out.println("Amount of loan, you can seek: "+(credit-cloan));
    }
}
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS2> javac ass2_01.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS2> java ass2_01
Enter the credit limit:
1000
Enter customer id:
101
Enter customer name:
shruti
Enter customer phone no:
988676980
Enter customer current loan amount:
0
Customer Details:
Customer id: 101
Customer name: shruti
Customer phone no: 988676980
Customer current loan amount: 0.0
Do you want to change the name of the customer(TRUE or FALSE)?
true
Enter new customer name:
Annesa
Do you want to change the phone no of the customer(TRUE or FALSE)?
false
Enter the loan amont:
500
Loan is sanctioned!!!
Your total loan amount is: 500.0
Your credit value is: 1000.0
Your current loan amount is: 500.0
Amount of loan, you can seek: 500.0

For privilleged customer!
Enter the credit limit for privilleged customer:
5000
Enter customer id:
501
Enter customer name:
Puja
Enter customer phone no:
987563548
Enter customer current loan amount:
4000
Customer Details:
Customer id: 501
Customer name: Puja
Customer phone no: 987563548
Customer current loan amount: 4000.0
Do you want to change the name of the customer(TRUE or FALSE)?
false
Do you want to change the phone no of the customer(TRUE or FALSE)?
true
```

Enter new customer phone no:
979854678
Enter the loan amont:
2000
Exceed credit limit, loan cannot be sanctioned!!!
Your credit value is: 5000.0
Your current loan amount is: 4000.0
Amount of loan, you can seek: 1000.0

6. Consider a wrapper class for a numeric basic type. Check the support for the following: conversion from i) basic type to object ii) object to basic type iii) basic type to String iv) String (holding numeric data) to numeric object v) object to String.

SOURCE CODE:

```
import java.util.Scanner;

public class ass2_06 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a integer: ");
        int a = sc.nextInt();
        Integer i = Integer.valueOf(a);
        System.out.println("Basic type to object => " + i);
        int b = i.intValue();
        System.out.println("Object to basic type => " + b);
        String num = String.valueOf(b);
        System.out.println("Basic type to string => " + num);
        Integer newNum = Integer.parseInt(num);
        System.out.println("String (holding numeric data) to  numeric object => " + newNum);
        String newString = Integer.toString(b);
        System.out.println("Object to string => " + newString);
        sc.close();
    }
}
```

output:

PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS2> javac ass2_06.java
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\JAVA\ASS2> java ass2_06
Enter a integer:
20
Basic type to object => 20
Object to basic type => 20
Basic type to string => 20
String (holding numeric data) to numeric object => 20
Object to string => 20

PYTHON ASSIGNMENT 1:

1. **Write a prime generator program using only primes and using python loops.**

SOURCE CODE:

```
min=int(input("Enter the lowest range: "))
max=int(input("Enter the upper range: "))
print("The Prime numbers in the range are: ")
for i in range(min,max+1):
    if i > 1:
        for j in range(2,i):
            if (i%j) == 0:
                break
        else:
            print(i)
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass1.py
Enter the lowest range: 10
Enter the upper range: 30
The Prime numbers in the range are:
11
13
17
19
23
29
```

2. **Write a discount coupon code using dictionary in Python with different rate coupons for each day of the week.**

SOURCE CODE:

```
import datetime
coupon_codes={
    "Monday": 0.10,
    "Tuesday": 0.15,
    "Wednesday": 0.20,
    "Thursday": 0.25,
    "Friday": 0.30,
    "Saturday": 0.35,
    "Sunday": 0.40,
}

current_day= datetime.datetime.now().strftime("%A")

if current_day in coupon_codes:
    discount_rate = coupon_codes[current_day]
    coupon_code= f"DISCOUNT{int(discount_rate * 100)}"
    print(f"Today is {current_day}, and the discount rate is {discount_rate *100}%")
```

```
    print(f"Use coupon code '{coupon_code}' at checkout to avail the discount!")
else:
    print("No discount for today")
```

output:

PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass2.py
Today is Saturday, and the discount rate is 35.0%
Use coupon code 'DISCOUNT35' at checkout to avail the discount!

3. **Print first 10 odd and even numbers using iterators and compress. You can use duck typing.**

SOURCE CODE:

```
from itertools import compress,count
numbers=count(1)
odd_pattern= [True,False]*10
odd_numbers= compress(numbers,odd_pattern)
print("First 10 odd numbers : ")
for _ in range(10):
    print(next(odd_numbers),end = " ")
print()

numbers=count(1)
even_pattern= [False,True]*10
even_numbers= compress(numbers,even_pattern)
print("First 10 even numbers : ")
for _ in range(10):
    print(next(even_numbers),end = " ")
print()
```

output:

PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass3.py
First 10 odd numbers :
1 3 5 7 9 11 13 15 17 19
First 10 even numbers :
2 4 6 8 10 12 14 16 18 20

4. **Write a regular expression to validate a phone number.**

SOURCE CODE:

```
import re
n=input('Enter Mobile number : ')
r=re.fullmatch('[6-9][0-9]{9}',n)
if r!=None:
    print('Valid Number')
else:
    print('Not a valid number')
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass4.py
Enter Mobile number : 7679532692
Valid Number
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass4.py
Enter Mobile number : 234567
Not a valid number
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass4.py
Enter Mobile number : oiuyft
Not a valid number
```

5. **Write first seven Fibinacci numbers using generator next function/ yield in python. Trace and memorize the function.**

SOURCE CODE:

```
def fibo_generator():
    a,b=0,1
    count=0
    while count < 7:
        yield a
        a,b=b,a+b
        count +=1

fib_gen= fibo_generator()

print("Fibonacci Sequence with 7 terms: ")
for i in range(7):
    fibo_num=next(fib_gen)
    print(fibo_num, end= " ")
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass5.py
Fibonacci Sequence with 7 terms:
0 1 1 2 3 5 8
```

6. Write a simple program which loops over a list of user data (tuples containing a username, email and age) and adds each user to a directory if the user is at least 16 years old. You do not need to store the age. Write a simple exception hierarchy which defines a different exception for each of these error conditions:

- **the username is not unique**
- **the age is not a positive integer**
- **the user is under 16**
- **the email address is not valid (a simple check for a username, the @ symbol and a domain name is sufficient)**

Raise these exceptions in your program where appropriate. Whenever an exception

occurs, your program should move onto the next set of data in the list. Print a different error message for each different kind of exception.

SOURCE CODE:

```
userdata=[
    ["user1", "user1@gmail.com",12],
    ["user2", "user2@gmail.com",15],
    ["user3", "user3@gmail.com",19],
    ["user3", "user3@gmail.com",19],
    ["user4", "user4@gmail.com",30],
    ["user5", "user5@gmail.com",-21],
    ["user6", "user6@gmail.com",67],
    ["user7", "user7@gmail.com",18],
    ["user8", "user8gmail.com",19]
]
user_dict={}
for user in userdata:
    try:
        if(user[0] in user_dict.keys()):
            raise Exception("The username is not unique for: " +user[0])
        elif(user[2] <0):
            raise Exception("The age is not a positive integer for: "+user[0])
        elif(user[2]<16):
            raise Exception("The user is under 16 for: "+user[0])
        elif '@' not in user[1] or '.com' not in user[1]:
            raise Exception("The email address is not valid for: "+user[0])
        else:
            user_dict[user[0]]= user[1]
    except Exception as e:
        print("Exception occured!!!",str(e))
        continue
print("\nValid users are: ")
print(user_dict)
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass5.py
Fibonacci Sequence with 7 terms:
0 1 1 2 3 5 8
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass6.py
Exception occured!!! The user is under 16 for: user1
Exception occured!!! The user is under 16 for: user2
Exception occured!!! The username is not unique for: user3
Exception occured!!! The age is not a positive integer for: user5
Exception occured!!! The email address is not valid for: user8

Valid users are:
{'user3': 'user3@gmail.com', 'user4': 'user4@gmail.com', 'user6': 'user6@gmail.com', 'user7':
'user7@gmail.com'}
```

8. Create a list of all the numbers up to N=50 which are multiples of five using anonymous function.

SOURCE CODE:

```
# Create a list of all numbers up to N=50 that are multiples of five using an anonymous function
N = 50

# Use a list comprehension with an anonymous function
multiples_of_five = [num for num in range(1, N+1) if (lambda x: x % 5 == 0)(num)]

# Print the list of multiples of five
print(multiples_of_five)
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass8.py
[5, 10, 15, 20, 25, 30, 35, 40, 45, 50]
```

10. Filter out the odd squares using map, filter, list.

SOURCE CODE:

```
import math
def is_odd(num):
    return math.sqrt(num) % 2 != 0

def square(num):
    return num * num

# List of numbers
numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

# Use map to square each number
squared_numbers = list(map(square, numbers))

# Use filter to keep only odd numbers
filtered_numbers = list(filter(is_odd, squared_numbers))

print(filtered_numbers)
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass10.py
[1, 9, 25, 49, 81]
```

11. Let's find all Pythagorean triples whose short sides are numbers smaller than 10. use filter and comprehension.

SOURCE CODE:

```
# Define the function to check if a triple is a Pythagorean triple
def is_pythagorean_triple(triple):
    a, b, c = triple
    return a**2 + b**2 == c**2

# Generate all possible combinations of numbers smaller than 10
numbers = range(1, 10)

# Use filter and comprehension to find the Pythagorean triples
pythagorean_triples = [
    (a, b, c)
    for a in numbers
     for b in numbers
     for c in numbers
    if is_pythagorean_triple((a, b, c))
]

# Print the Pythagorean triples
for triple in pythagorean_triples:
    print(triple)
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> py ass11.py
(3, 4, 5)
(4, 3, 5)
```

12. Enumerate the sequence of all lowercase ASCII letters, starting from 1, using enumerate.

SOURCE CODE

```
list_chars=["a","b","c","d","e","f","g","h","i","j","k","l","m","n","o","p","q",
            "r","s","t","u","v","w","x","y","z"]

i=1

for ascii,char in enumerate(list_chars,97):
    print(i,". ",char,"-->",ascii,sep='')
    i=i+1
```

output:

```
PS C:\Users\Shruti Pathak\Documents\MCA 2ND SEM\PYTHON> python -u "c:\Users\Shruti
Pathak\Documents\MCA 2ND SEM\PYTHON\ass12.py"
1. a-->97
2. b-->98
3. c-->99
4. d-->100
5. e-->101
6. f-->102
```

7. g-->103
8. h-->104
9. i-->105
10. j-->106
11. k-->107
12. l-->108
13. m-->109
14. n-->110
15. o-->111
16. p-->112
17. q-->113
18. r-->114
19. s-->115
20. t-->116
21. u-->117
22. v-->118
23. w-->119
24. x-->120
25. y-->121
26. z-->122