**Problem Statement:**

Write a code in python in which you can get “Fizz Buzz” for all numbers which can be divided by (3, 5, 15). The range should from (1 to 100).

for num in range(1, 101):  
 if num % 15 == 0:  
 print("Fizz Buzz")  
 elif num % 3 == 0:  
 print("Fizz")  
 elif num % 5 == 0:  
 print("Buzz")  
 else:  
 print(num)

**Questions:**

* - Which operator you will use in order to execute this code?

‘%’ operator

**Problem Statement:**

How to swap all uppercase characters to lowercase and vice versa?

user\_input = input("Enter a string: ")  
swapped\_string = user\_input.swapcase()  
print("Swapped case string:", swapped\_string)

**Questions:**

* - How the user will enter the character?

Using input() function

* - How it will swap?

The **swapcase()** method will iterate through each character in the string. If the

character is uppercase, it will convert it to lowercase and vice versa.

* - Which commands will be used to convert each other?

Using swapcase() method.

**Problem Statement:**

Swap the numbers with and without the 3rd Variable.

With 3rd variable:

a=int(input("Enter value of first variable: "))  
b=int(input("Enter value of second variable: "))  
temp = a  
a = b  
b = temp  
print("a is:",a," b is:",b)

Without 3rd variable:

a=int(input("Enter value of first variable: "))  
b=int(input("Enter value of second variable: "))  
a=a+b  
b=a-b  
a=a-b  
print("a is:",a," b is:",b)

**Questions:**

* - How you will create and store the value in 3rd variable?

Using a temporary variable

* - How you will do it without the 3rd Variable?

Using addition and subtraction operation.

**Problem Statement:**

Write a code in python which will give you a Fibonacci series to a number when you enter it.

n= int(input("enter the number "))  
  
n1, n2 = 0, 1  
count = 0  
  
if n<= 0:  
 print("Please enter a positive integer")  
elif n== 1:  
 print("Fibonacci sequence upto",n,":")  
 print(n1)  
else:  
 print("Fibonacci sequence:")  
 while count < n:  
 print(n1)  
 nth = n1 + n2  
 n1 = n2  
 n2 = nth  
 count += 1

**Questions:**

* - How you will you deal when a user inputs ‘0’?

We can ask user to enter positive value.

* - How the user will deal when a user inputs ‘1’?

It will give 0 value at output.

* - Which loops and statements do you use for the iterations?

While loop

**Problem Statement:**

Create a game in which user guesses a random number in python.

import random  
  
  
def guess\_the\_number():  
 secret\_number = random.randint(1, 100)  
 attempts = 5  
  
 print("Welcome to the Number Guessing Game!")  
 print("Guess the number between 1 and 100.")  
 print(f"You have {attempts} attempts to guess the correct number.")  
  
 while attempts > 0:  
 try:  
 guess = int(input("Enter your guess: "))  
  
 if guess == secret\_number:  
 print("Congratulations! YOU WON!")  
 return  
  
 elif guess < secret\_number:  
 print("Too low! Try again.")  
 else:  
 print("Too high! Try again.")  
  
 attempts -= 1  
 print(f"You have {attempts} attempts left.")  
  
 except ValueError:  
 print("Invalid input! Please enter a valid number.")  
  
 print(f"Sorry, YOU LOST! The correct number was {secret\_number}.")  
  
  
guess\_the\_number()

**Questions:**

* - How will generate random number and how will you set the range?

random.randint()

* - How to add attempts in your code, that user can have only 5 attempts to play?

Initializing attempts with 5 .

* - How will you subtract a attempt when user plays it one time?

attempts += 1

* - How will you show the ‘YOU WON!’ and ‘YOU LOST’ message?

If the user guesses the number correctly, print "Congratulations! YOU WON!" and exit the function.

If the user exhausts all attempts, print "Sorry, YOU LOST!" and reveal the correct number.

**Problem Statement:**

Create a Basic Calculator that can do Addition, Subtraction, Multiplication and Division in Python.

def add(x, y):  
 return x + y  
  
def subtract(x, y):  
 return x - y  
  
def multiply(x, y):  
 return x \* y  
  
def divide(x, y):  
 if y == 0:  
 return "Error! Division by zero."  
 else:  
 return x / y  
  
def calculator():  
 while True:  
 # Display the menu  
 print("\nSelect operation:")  
 print("1. Addition")  
 print("2. Subtraction")  
 print("3. Multiplication")  
 print("4. Division")  
 print("5. Exit")  
  
 choice = input("Enter choice (1/2/3/4/5): ")  
  
 if choice == '5':  
 print("Exiting the calculator. Goodbye!")  
 break  
  
 if choice in ['1', '2', '3', '4']:  
 try:  
 num1 = float(input("Enter first number: "))  
 num2 = float(input("Enter second number: "))  
  
 if choice == '1':  
 print(f"{num1} + {num2} = {add(num1, num2)}")  
 elif choice == '2':  
 print(f"{num1} - {num2} = {subtract(num1, num2)}")  
 elif choice == '3':  
 print(f"{num1} \* {num2} = {multiply(num1, num2)}")  
 elif choice == '4':  
 result = divide(num1, num2)  
 print(f"{num1} / {num2} = {result}")  
  
 except ValueError:  
 print("Invalid input! Please enter numeric values.")  
 else:  
 print("Invalid choice! Please select a valid operation.")  
  
calculator()

**Questions:**

* - How to create Choices for the user?

using print statements within a while loop to allow continuous operation until the

user decides to exit.

* - How the user input two numbers?

Using input() and float()

* - How can you add your define functions inside your If-else statements?

Functions **add**, **subtract**, **multiply**, and **divide** are called inside the if-else

statements based on the user's choice.

* - How do stop the calculations at a certain part?

Use break statement

* - How do you cope with this when a user will type a invalid input?

Using try-except block