

Task 9: Implement Exceptions and Exceptional handling in Python:

Aim: To implement Exceptions and Exceptional handling in python.

Problem 9.1: You are developing a python that processes a list of 5 students' grades.

Algorithm:

1. Start the program.
2. Initialize a list of grades (e.g., [85, 90, 78, 92, 88]).
3. Prompts the user to enter the index of the grade they wish to view.
4. Attempts to display the grade at the specified index.
5. If the index is out of range, catches the index error and prints an error message, "Invalid index. please enter a valid index".

Program:

```
grades = [85, 90, 78, 92, 88]
print("Grades List", grades)
index = int(input("Enter the index of the grade you want to view:"))
print(f"The grade at index {index} is: {grades[index]}")
except IndexError:
    print("Invalid index. please enter a valid index.")
except ValueError:
    print("Invalid input please enter a numerical index")
```

Problem 9.2: You are developing a python calculator program that performs basic arithmetic operations. one of the key functions abilities is to divide two numbers entered by the user.

Algorithm:

1. Start the program
2. Prompts the user to enter two number: a numerator and denominator.
3. Attempts to divide the numerator by the zero Division Error and displays
4. If the denominator is zero, catches the zero Division Error and displays an error message "Error: Division by zero is not allowed".

Program:

```
def divide_numbers():
    try:
        numerator = float(input("Enter the numerator:"))
        denominator = float(input("Enter the denominator:"))
        result = numerator / denominator
        print(f"Result: {result}")
    except zero Division Error:
        print(f"Error: Division by zero is not allowed.")
    except Value Error:
        print("Error: please enter valid numbers")
    divide_numbers()
```

Output:

Grades List: [85, 90, 78, 92, 88]

Enter the index of the grade you want to view: 10

Invalid index please enter a valid index.

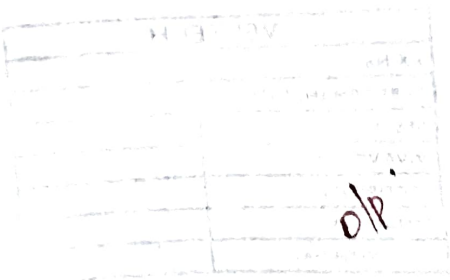
Output:

Enter the numerator: 10

Enter the denominator: 0

ERROR!

ERROR: Division by zero is not allowed.



Output:

Enter a number: 15

Exception occurred : Invalid ~~Age~~.

M/o

Problem 9.3: You are building a python application to determine if a person is eligible to vote based on their age.

Algorithm:

1. Define the custom exception.
2. prompt the user for input.
3. Check if the age is below 18.
4. Raise an exception if the condition is met.
5. Handle the exception with a custom error message.

Program:-

```
# Define python user_define exceptions.
class InvalidException(Exception):
    "Raised when the input value is less than 18".
    pass

# You need to guess this number.
number = 18

try:
    Input_num = int(input("Enter a number: "))
    if input_num < number:
        raise InvalidException
    else:
        print("Eligible to voice")
except InvalidException:
    print("Exception occurred: Invalid Age")
```

VELTECH	
EX No.	9
PERFORMANCE (5)	5
ANALYSIS (5)	5
IVA VOCE (5)	5
RECORD (5)	5
DATE	12/12/2023

Result: Thus the program for implement Exceptions and Exception handling is executed and verified successfully.