# Python Mini Projects

## 1. Calculator

def calculator():  
 print("Welcome to Calculator!")  
 while True:  
 print("\nSelect operation:")  
 print("1. Add")  
 print("2. Subtract")  
 print("3. Multiply")  
 print("4. Divide")  
 print("5. Exit")  
 choice = input("Enter choice (1/2/3/4/5): ")  
   
 if choice == '5':  
 print("Exiting Calculator. Goodbye!")  
 break  
  
 if choice in ['1', '2', '3', '4']:  
 num1 = float(input("Enter first number: "))  
 num2 = float(input("Enter second number: "))  
 if choice == '1':  
 print(f"Result: {num1 + num2}")  
 elif choice == '2':  
 print(f"Result: {num1 - num2}")  
 elif choice == '3':  
 print(f"Result: {num1 \* num2}")  
 elif choice == '4':  
 if num2 != 0:  
 print(f"Result: {num1 / num2}")  
 else:  
 print("Error! Division by zero.")  
 else:  
 print("Invalid choice. Please try again.")  
  
calculator()

## 2. Grade System

def grade\_system():  
 grades = {  
 "A": "Excellent",  
 "B": "Good",  
 "C": "Average",  
 "D": "Below Average",  
 "F": "Fail"  
 }  
  
 score = int(input("Enter your score (0-100): "))  
 if 90 <= score <= 100:  
 print(f"Your grade: A - {grades['A']}")  
 elif 80 <= score < 90:  
 print(f"Your grade: B - {grades['B']}")  
 elif 70 <= score < 80:  
 print(f"Your grade: C - {grades['C']}")  
 elif 60 <= score < 70:  
 print(f"Your grade: D - {grades['D']}")  
 elif 0 <= score < 60:  
 print(f"Your grade: F - {grades['F']}")  
 else:  
 print("Invalid score!")  
  
grade\_system()

## 3. Contact Book

def contact\_book():  
 contacts = {}  
 while True:  
 print("\nContact Book Menu:")  
 print("1. Add Contact")  
 print("2. View Contacts")  
 print("3. Search Contact")  
 print("4. Exit")  
 choice = input("Enter choice (1/2/3/4): ")  
   
 if choice == '1':  
 name = input("Enter name: ")  
 phone = input("Enter phone number: ")  
 contacts[name] = phone  
 print("Contact added successfully!")  
 elif choice == '2':  
 print("\nContacts List:")  
 for name, phone in contacts.items():  
 print(f"{name}: {phone}")  
 elif choice == '3':  
 search\_name = input("Enter name to search: ")  
 if search\_name in contacts:  
 print(f"{search\_name}: {contacts[search\_name]}")  
 else:  
 print("Contact not found!")  
 elif choice == '4':  
 print("Exiting Contact Book.")  
 break  
 else:  
 print("Invalid choice!")  
  
contact\_book()

## 4. Simple To-Do List

def todo\_list():  
 tasks = []  
 while True:  
 print("\nTo-Do List Menu:")  
 print("1. Add Task")  
 print("2. View Tasks")  
 print("3. Remove Task")  
 print("4. Exit")  
 choice = input("Enter choice (1/2/3/4): ")  
  
 if choice == '1':  
 task = input("Enter a new task: ")  
 tasks.append(task)  
 print("Task added!")  
 elif choice == '2':  
 print("\nYour Tasks:")  
 for idx, task in enumerate(tasks, 1):  
 print(f"{idx}. {task}")  
 elif choice == '3':  
 print("\nYour Tasks:")  
 for idx, task in enumerate(tasks, 1):  
 print(f"{idx}. {task}")  
 try:  
 task\_num = int(input("Enter task number to remove: "))  
 tasks.pop(task\_num - 1)  
 print("Task removed!")  
 except (IndexError, ValueError):  
 print("Invalid task number!")  
 elif choice == '4':  
 print("Exiting To-Do List.")  
 break  
 else:  
 print("Invalid choice!")  
  
todo\_list()

## 5. Unique Number Finder

def unique\_number\_finder():  
 numbers = list(range(1, 101)) # List of numbers from 1 to 100  
 duplicate\_numbers = [2, 3, 4, 5, 5, 10, 15, 20, 20] # List with duplicates  
 all\_numbers = numbers + duplicate\_numbers  
  
 unique\_numbers = set(all\_numbers)  
 print(f"Unique Numbers ({len(unique\_numbers)}):")  
 print(unique\_numbers)  
  
unique\_number\_finder()