PYTHON EXERCISE-2

1. BMI Calculator (Input + Function + Conditions + math)

What to do:

Ask user to enter weight (kg) and height (m)

Create a function to calculate BMI = weight / height2

Print if the user is Underweight, Normal, or Overweight

Use: math.pow(height, 2) or height * height

CODE:

```
import math
def calculate_bmi(weight,height):
   bmi = weight / math.pow(height,2)
   return bmi

weight=float(input("Enter your weight (kg): "))
height=float(input("Enter your height (m):"))

bmi=calculate_bmi(weight,height)
if bmi < 18.5:
   print("You are underweight")
elif bmi < 25:
   print("You are normal")
else:
   print("You are overweight")
```

2. Strong Password Checker (Strings + Conditions + Loop)

What to do:

Ask the user to enter a password

Check if it:

Has at least 1 capital letter

Has at least 1 number

Has at least 1 special character like !@#$

If not, ask again until the password is strong.

CODE:

```
while True:
   password=input("Enter a strong password:")

   has_capital=False
   has_number=False
   has_special=False

   for char in password:
      if char.isupper():
         has_capital=True
      elif char.isdigit():
         has_number=True
      elif char in "!@#$":
         has_special=True

   if has_capital and has_number and has_special:
      print("Password is strong")
      break
   else:
      print("Password must have at least:")
      print("- 1 capital letter")
      print("- 1 number")
      print("- 1 special character (!, @, #, $)")
      print("Please try again.\n")
```

3. Weekly Expense Calculator (List + Loop + Built-in Functions)

What to do:

Ask the user to enter 7 numbers (daily expenses)

Store them in a list

Create a function to:

Show total spent

Show average per day

Show highest spend in a day

Use: sum() , max() , len()

CODE:

```
def show_summary(expenses):
    total=sum(expenses)
    average=total/len(expenses)
    highest=max(expenses)

    print("\n--- Weekly Expense Summary ---")
    print("Total spent:", total)
    print("Average per day:", average)
    print("Highest spent in a day:", highest)
daily_expenses=[]
for i in range(7):
    amount=float(input(f"Enter expense for day {i + 1}: "))
    daily_expenses.append(amount)
show_summary(daily_expenses)
```

4. Guess the Number (Loops + random)

What to do:

Use random.randint(1, 50) to pick a secret number

Ask the user to guess

Tell them if their guess is Too High, Too Low, or Correct

Give only 5 chances

CODE:

```
import random
secret=random.randint(1,50)
chances=5
for i in range(chances):
    guess=int(input("Guess the number(1 to 50):"))
    if guess==secret:
        print("Correct!You win")
        break
    elif guess < secret:
```

```
        print("Too low.")
    else:
        print("Too high")
if guess!=secret:
    print("Out of chances.The number was:",secret)
```

5. Student Report Card (Functions + Input + If/Else + datetime)

What to do:

Ask name and 3 subject marks

Create functions to:

Calculate total and average

Print grade: A, B, or C

Show current date using datetime.date.today()

CODE:

```
import datetime
name=input("Enter student name:")
m1 = float(input("Enter mark 1: "))
m2 = float(input("Enter mark 2: "))
m3 = float(input("Enter mark 3: "))
total=m1+m2+m3
average=total/3
if average > 80:
    grade="A"
elif average >= 60:
    grade="B"
else:
    grade="C"
print("\n--- Report Card ---")
print("Name:", name)
print("Total:", total)
print("Average:", average)
print("Grade:", grade)
print("Date:", datetime.date.today())
```

6. Contact Saver (Loop + Dictionary + File Writing)

What to do:

Show a menu:

1. Add Contact

2. View Contacts

3. Save & Exit

Save contacts (name, phone) in a dictionary

When exiting, write them into a file called contacts.txt line by line

Use: open() , for loop, dictionary

CODE:

```
contacts={}
while True:
    print("\n1. Add Contact")
    print("2. View Contacts")
    print("3. Save & Exit")
    choice=input("Enter choice:")
    if choice=="1":
        name=input("Enter name:")
        phone=input("Enter phone number:")
        contacts[name]=phone
    elif choice=="2":
        print("\nSaved Contacts:")
        for name, phone in contacts.items():
            print(name, ":", phone)
    elif choice=="3":
        with open("contacts.txt", "w") as file:
            for name, phone in contacts.items():
                file.write(name + " : " + phone + "\n")
        print("Contacts saved to contacts.txt")
        break

    else:
        print("Invalid choice. Try again.")
```