PARSHVANATH CHARITABLE TRUST'S
A. P. SHAH INSTITUTE OF TECHNOLOGY, THANE
(ALL PROGRAMS ACCREDITED BY NBA)

APSIT SKILLS INTERNSHIP – PROJECT REPORT

SE COMPUTER

Project Batch: B1

Team Members Names -

Team Leader: - TEJAS SHETH

Member 1: - AKSHEN DHAMI

Member 2: - PARAG PATIL

Technology Selected: Python

Project Topic Name: CHECKING WITH PROGRAM

Problem statement:

Checking with Program

A. Write a Python program to print all prime nos. between given range

B. Write a Python program to find whether a given number (accept from the user) is even or odd, print out an appropriate message to the user.

C. Write a Python program to find whether a given number (accept from the user) is Prime or composite, print out an appropriate message to the user.

D. Write a Python program to test whether a passed letter is a vowel or not.

E. Write a Python Game to Guess the correct number.

Detailed Workflow:

- Functions/modules used for the program
  - Modules – string, random.
  - Functions – all_prime, even_odd, prime_composite, vowel_consonant, guess_game.

- Flow of your code
  - The approach we are using here is a Menu-Driven Methods where we will give a menu on the initial page with multiple choices –
    0. Exit
    1. Print all Prime Numbers.
    2. Find if Number is Odd or Even.
    3. Find if Number is Prime or Composite.
    4. Find if Letter is Vowel or Not.
    5. Guessing the Number Game.

- Any number other than specified will lead to re-running of the program.

The Menu-Driven Page, which will consist of all the functions and respective programs and work completely on Function-Calling Method, and will Direct the user to his desired option.

The functions are imported in the following manner –
from 'program' import 'function': -

- from Part_1 import all_prime
- from Part_2 import even_odd
- from Part_3 import prime_composite
- from Part_4 import vowel_consonant
- from Part_5 import guess_game

The Menu-Driven Page will be worked upon by using While Loop containing if-elif statements directing the User towards the desired and relevant function operation.
In-Case the User enters an Invalid Number or Character, a prompt will be displayed and will lead to re-running of the program.

0. Exit

a. The Program is Terminated with a Confirmation Prompt.
b. If User Selects YES, the program will terminate with a 'THANK YOU' message.
c. Otherwise, the program will Re-run.

1. Print all Prime Numbers => **all_prime function**

a. Inputs Expected: - Start and End Integer.
b. The Start Value should always be less than End Value.
c. It will prompt the user to enter only Integers if he enters anything else.
d. The 'Outer For Loop' will iterate over the range of start to end, as specified by the user one at a time.

e. If the condition is True, the 'Inner For Loop' will iterate over the range of 2 to the number from the 'outer for loop'.
f. The condition that the number from the 'outer for loop' divided by the number from the 'inner for loop' leaves remainder Zero will be checked and if True, it will break out of the 'inner for loop', otherwise it will iterate till the end and then print the number that is hence Prime.
g. This Program will appropriately print out all of the Prime numbers in the range of Start and End as entered by the user.
h. The User can Enter '-1' to Return to the Main Menu, either in Start or End or Both.

2. Find if Number is Odd or Even => **even_odd function**

a. Input Expected: - An Integer.
b. This program will print out appropriate message when the user will input any value.
c. It will also prompt the user to enter only Integers if he enters anything else.
d. For every Negative number except -1, the code will output 'Neither Odd nor Even'.
e. For every Positive number, the code will output either 'Odd' or 'Even', depending on the input supplied by the user.
f. If the remained of the Input with 2 is equal to Zero, then the entered number is 'Even', otherwise 'Odd'.
g. The User can Enter '-1' to Return to the Main Menu.

3. Find if Number is Prime or Composite => **prime_composite function**

a. Input Expected: - An Integer.
b. This program will print out appropriate message when the user will input any value.

c. It will also prompt the user to enter only Integers if he enters anything else.
d. For every Negative number except -1, the code will output 'Neither Prime nor Composite'.
e. For every Positive number, the code will output either 'Prime or 'Composite', depending on the input supplied by the user.
f. The 'For Loop' will iterate over the range of 2 to the number that is entered by the User.
g. The condition that the number entered divided by the number from the 'for loop' leaves remainder Zero will be checked and if True, it will break out of the 'for loop' and hence print 'Composite', otherwise it will iterate till the end and then print 'Prime'.
h. The User can Enter '-1' to Return to the Main Menu.

4. Find if Letter is Vowel or Not => **vowel_consonant function**

a. Input Expected: - A Letter.
b. This program will print out appropriate message when the user will input any value.
c. For Input with more than 1 letter or any input other than letters, the code will output '1 alphabet expected'.
d. Otherwise, the code will output either 'Vowel' or 'Consonant' depending on the Input given by the User.
e. The condition that the letter user input's is a vowel is checked and if True, it will print 'Vowel', otherwise it will print 'Consonant'.
f. The User can Enter '-1' to Return to the Main Menu.

5. Guess the Number Game => **guess_game function**

a. Inputs Expected: - Difficulty and Guess Integers
b. This program will print out appropriate message when the user will input any value.
c. It will also prompt the user to enter only Integers if he enters anything else.

d. A Random Value is stored in a variable as soon as the program is executed.
e. The First Input takes the Difficulty as assigned, and with it returns the Number of Tries.

- EASY – 7 attempts.
- MEDIUM – 5 attempts.
- EXTREME – 3 attempts.

f. The Second Input takes the Guess of the User.
g. The program checks if the entered Guess is in the given Range of 1 to 100, otherwise prompts the user to enter the guess in a Valid Range.
h. Depending on the Guess and the Randomly Generated Number, the program prints out varied prompts like –

- Guess is HIGH BUT CLOSE.
- Guess is HIGH.
- Guess is TOO HIGH.
- Guess is LOW BUT CLOSE.
- Guess is LOW.
- Guess is TOO LOW.

i. If before guessing the correct Number User runs out of Attempts, a prompt 'Out of Attempts…OOPS!' will be displayed.
j. Otherwise, a prompt 'BANG ON..! YOU GUESSED IT RIGHT' will be displayed, followed by the Remaining Number of Attempts.

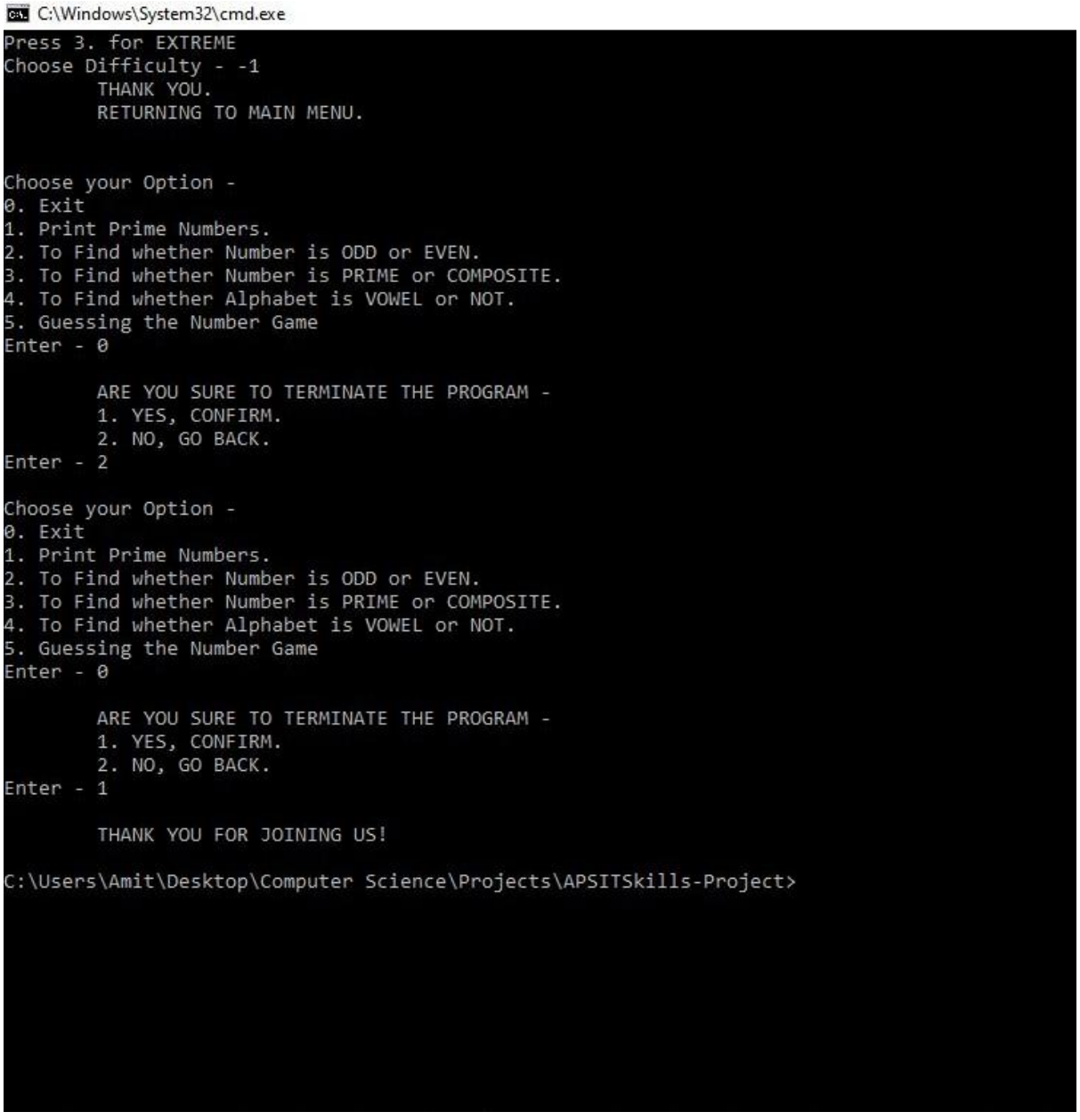
For every Program, a common 'BACK' option will be provided in case the user wants to go back to the Menu-Driven page and choose any other option.

GitHub / Drive link of project code:

- https://github.com/TejasSheth104/APSITSkills-Project

Output Screenshots:

0. Exit



1. Print all Prime Numbers

C:\Windows\System32\cmd.exe - CheckingWithProgram.py

```
C:\Users\Amit\Desktop\Computer Science\Projects\APSITSkills-Project>CheckingWithProgram.py

Choose your Option -
0. Exit
1. Print Prime Numbers.
2. To Find whether Number is ODD or EVEN.
3. To Find whether Number is PRIME or COMPOSITE.
4. To Find whether Alphabet is VOWEL or NOT.
5. Guessing the Number Game
Enter - 1

        1. Print Prime Numbers.

Enter '-1' to GO BACK.
Enter the Start Number - 10
Enter the End Number - 25
11 13 17 19 23

        1. Print Prime Numbers.

Enter '-1' to GO BACK.
Enter the Start Number - 30
Enter the End Number - 15
        START NUMBER SHOULD BE ALWAYS LESS THAN END NUMBER.
        TRY AGAIN.


        1. Print Prime Numbers.

Enter '-1' to GO BACK.
Enter the Start Number - aadfghr
Enter the End Number - 45
        INVALID CHOICE.
        TRY AGAIN.


        1. Print Prime Numbers.

Enter '-1' to GO BACK.
Enter the Start Number - -1
Enter the End Number - 0
        THANK YOU.
        RETURNING TO MAIN MENU.
```

2. Find if Number is Odd or Even

C:\Windows\System32\cmd.exe - CheckingWithProgram.py

```
Enter the End Number - 0
        THANK YOU.
        RETURNING TO MAIN MENU.


Choose your Option -
0. Exit
1. Print Prime Numbers.
2. To Find whether Number is ODD or EVEN.
3. To Find whether Number is PRIME or COMPOSITE.
4. To Find whether Alphabet is VOWEL or NOT.
5. Guessing the Number Game
Enter - 2

        2. To Find whether Number is ODD or EVEN.

Enter '-1' to GO BACK.
Enter a Number - 5
Number 5 - is ODD


        2. To Find whether Number is ODD or EVEN.

Enter '-1' to GO BACK.
Enter a Number - 8
Number 8 - is EVEN


        2. To Find whether Number is ODD or EVEN.

Enter '-1' to GO BACK.
Enter a Number - sg
        INTERGER EXCEPTED
        TRY AGAIN.


        2. To Find whether Number is ODD or EVEN.

Enter '-1' to GO BACK.
Enter a Number - -1
        THANK YOU.
        RETURNING TO MAIN MENU.


Choose your Option -
0. Exit
```

3. Find if Number is Prime or Composite

C:\Windows\System32\cmd.exe - CheckingWithProgram.py

```
Enter a Number - -1
        THANK YOU.
        RETURNING TO MAIN MENU.


Choose your Option -
0. Exit
1. Print Prime Numbers.
2. To Find whether Number is ODD or EVEN.
3. To Find whether Number is PRIME or COMPOSITE.
4. To Find whether Alphabet is VOWEL or NOT.
5. Guessing the Number Game
Enter - 3

        3. To Find whether Number is PRIME or COMPOSITE.

Enter '-1' to GO BACK.
Enter a Number - 27
Number 27 is Composite Number


        3. To Find whether Number is PRIME or COMPOSITE.

Enter '-1' to GO BACK.
Enter a Number - 53
Number 53 is a Prime Number


        3. To Find whether Number is PRIME or COMPOSITE.

Enter '-1' to GO BACK.
Enter a Number - djt
        INVALID CHOICE.
        TRY AGAIN.


        3. To Find whether Number is PRIME or COMPOSITE.

Enter '-1' to GO BACK.
Enter a Number - -1
        THANK YOU.
        RETURNING TO MAIN MENU.


Choose your Option -
0. Exit
```

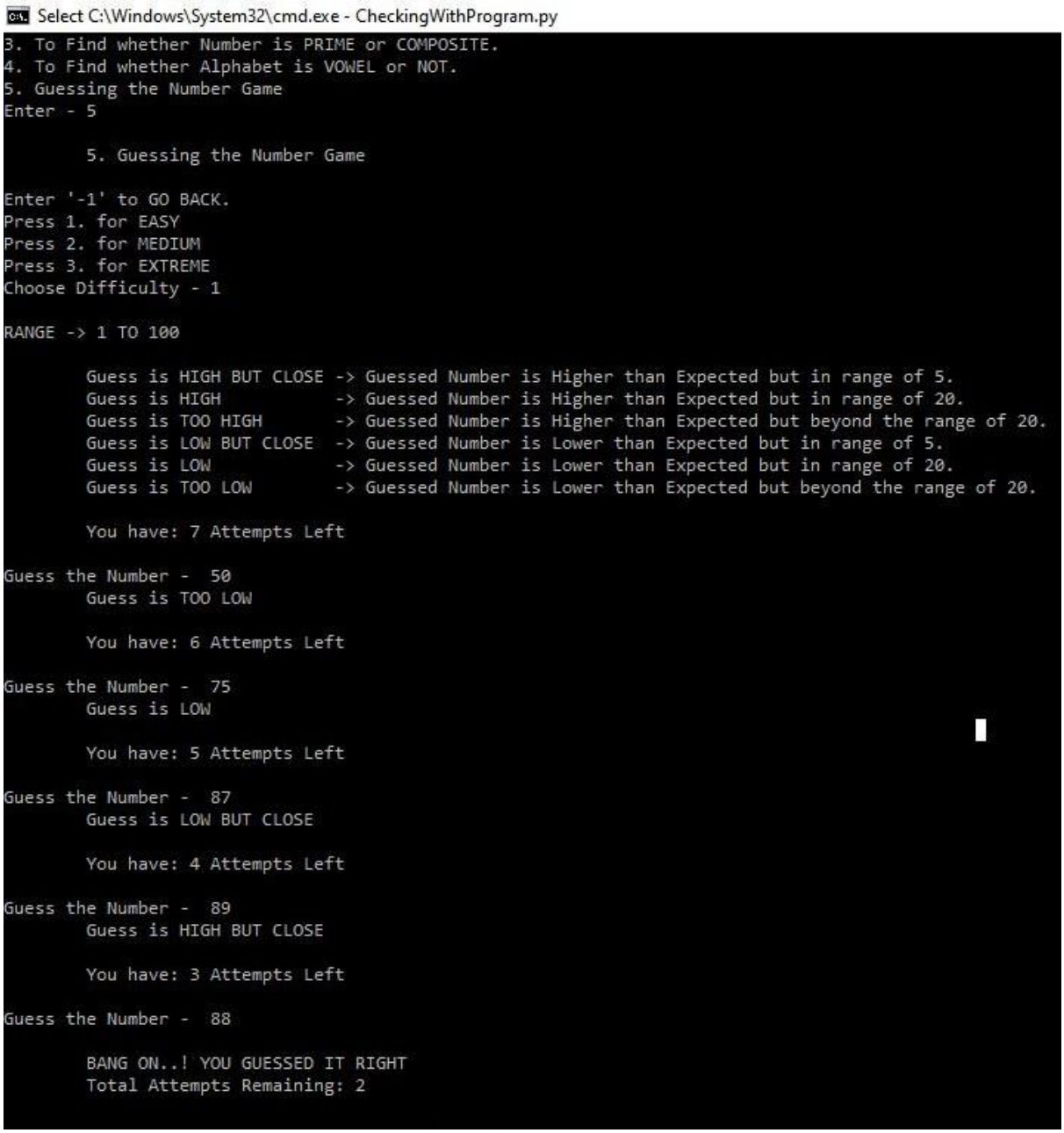
4. Find if Letter is Vowel or Not

C:\Windows\System32\cmd.exe - CheckingWithProgram.py

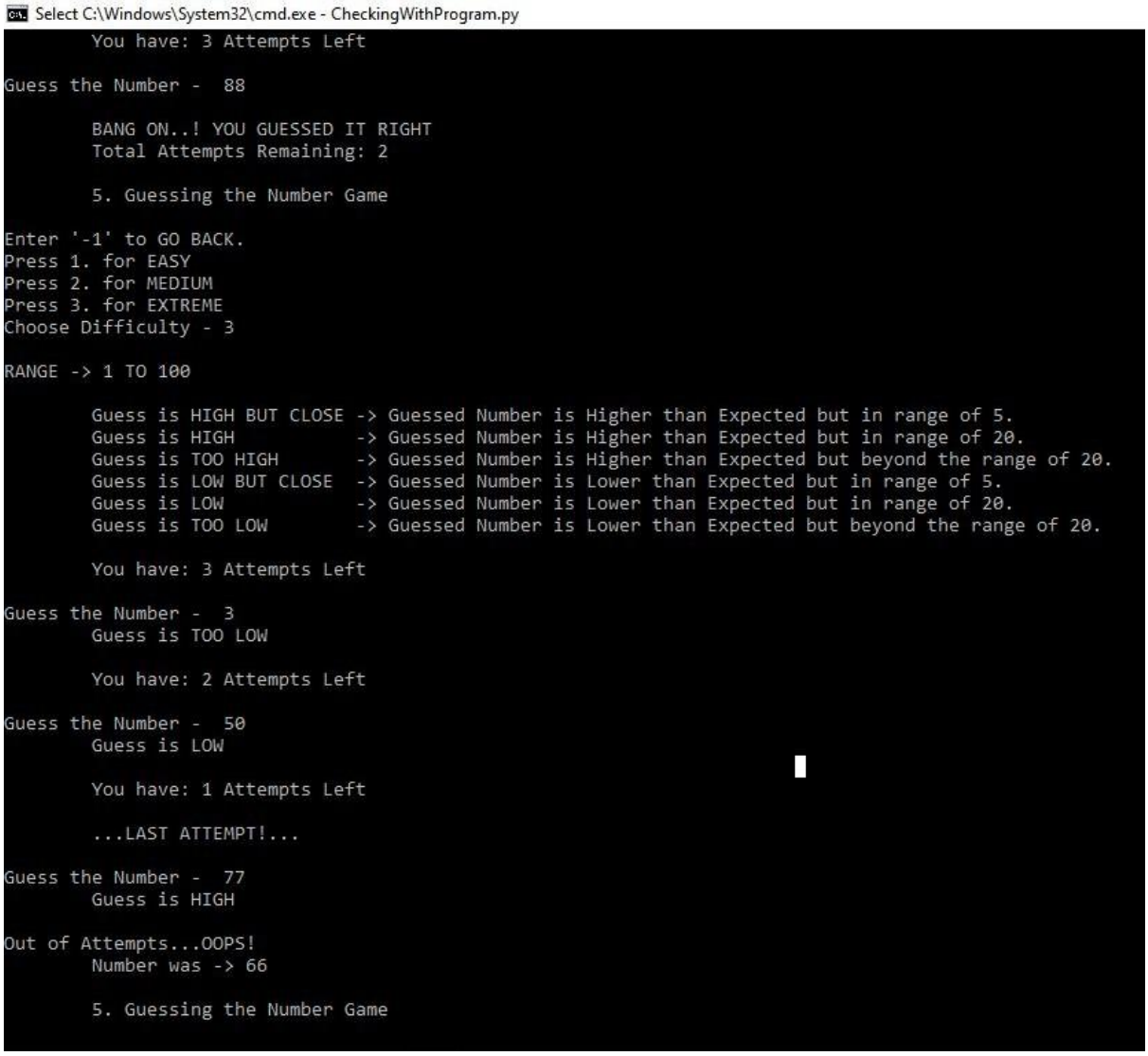
```
        THANK YOU.
        RETURNING TO MAIN MENU.


Choose your Option -
0. Exit
1. Print Prime Numbers.
2. To Find whether Number is ODD or EVEN.
3. To Find whether Number is PRIME or COMPOSITE.
4. To Find whether Alphabet is VOWEL or NOT.
5. Guessing the Number Game
Enter - 4

        4. To Find whether Alphabet is VOWEL or NOT.

Enter '-1' to GO BACK.
Enter a letter - w
Letter W - is CONSONANT

        4. To Find whether Alphabet is VOWEL or NOT.

Enter '-1' to GO BACK.
Enter a letter - u
Letter U - is a VOWEL

        4. To Find whether Alphabet is VOWEL or NOT.

Enter '-1' to GO BACK.
Enter a letter - A
Letter A - is a VOWEL

        4. To Find whether Alphabet is VOWEL or NOT.

Enter '-1' to GO BACK.
Enter a letter - 23
        1 LETTER EXCEPTED
        TRY AGAIN.


        4. To Find whether Alphabet is VOWEL or NOT.

Enter '-1' to GO BACK.
Enter a letter - -1
        THANK YOU.
        RETURNING TO MAIN MENU.
```

5. Guess the Number Game

(i)



(ii)


Select C:\Windows\System32\cmd.exe - CheckingWithProgram.py
You have: 3 Attempts Left
Guess the Number - 88
BANG ON..! YOU GUESSED IT RIGHT
Total Attempts Remaining: 2
5. Guessing the Number Game
Enter '-1' to GO BACK.
Press 1. for EASY
Press 2. for MEDIUM
Press 3. for EXTREME
Choose Difficulty - 3
RANGE -> 1 TO 100
Guess is HIGH BUT CLOSE -> Guessed Number is Higher than Expected but in range of 5.
Guess is HIGH -> Guessed Number is Higher than Expected but in range of 20.
Guess is TOO HIGH -> Guessed Number is Higher than Expected but beyond the range of 20.
Guess is LOW BUT CLOSE -> Guessed Number is Lower than Expected but in range of 5.
Guess is LOW -> Guessed Number is Lower than Expected but in range of 20.
Guess is TOO LOW -> Guessed Number is Lower than Expected but beyond the range of 20.
You have: 3 Attempts Left
Guess the Number - 3
Guess is TOO LOW
You have: 2 Attempts Left
Guess the Number - 50
Guess is LOW
You have: 1 Attempts Left
...LAST ATTEMPT!...
Guess the Number - 77
Guess is HIGH
Out of Attempts...OOPS!
Number was -> 66
5. Guessing the Number Game

(iii)

```
C:\Windows\System32\cmd.exe
        5. Guessing the Number Game

Enter '-1' to GO BACK.
Press 1. for EASY
Press 2. for MEDIUM
Press 3. for EXTREME
Choose Difficulty - 6
        INVALID CHOICE.
        TRY AGAIN.


        5. Guessing the Number Game

Enter '-1' to GO BACK.
Press 1. for EASY
Press 2. for MEDIUM
Press 3. for EXTREME
Choose Difficulty - afsg
        INVALID CHOICE.
        TRY AGAIN.


        5. Guessing the Number Game

Enter '-1' to GO BACK.
Press 1. for EASY
Press 2. for MEDIUM
Press 3. for EXTREME
Choose Difficulty - -1
        THANK YOU.
        RETURNING TO MAIN MENU.


Choose your Option -
0. Exit
1. Print Prime Numbers.
2. To Find whether Number is ODD or EVEN.
3. To Find whether Number is PRIME or COMPOSITE.
4. To Find whether Alphabet is VOWEL or NOT.
5. Guessing the Number Game
Enter - 0
```

Acknowledgment: