National University of Computer and Emerging Sciences

Lab Quiz 3

Computer Organization and Assembly Language

| **Time Allowed** | 30 Minutes | **Student Name** | |  |
| --- | --- | --- | --- | --- |
| **Maximum Marks** | 100 | **Roll Number** | |  |
| **Lab Instructors** | Hazoor | | **Date** |  |

## ACTIVITY: [100 Marks]

1. Write an assembly program that takes a 16bit number as input from user and calculates whether the number is a **happy** or **unhappy**. If the number is a happy number, display ‘**Happy’** on the screen else display ‘**UnHappy’**.

**Happy and Unhappy Numbers**:

For a given number **N**, if in 256 iterations the sum of squares of digits of **N** equals to 1 then number is **happy** else number is **unhappy**.

**For Example:**

for to

if ()

Display (My name is **Hazoor** and I am **Happy)**

ret

else

; after 256 iterations the number becomes automatically unhappy

Display (My name is **Hazoor** and I am **UnHappy)**

ret

**Hint**! Use ah =01 service of int 21h to take input from user and ah=09 service of int 21h to print string on the screen.