

## ASSISSMENT 1

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### Q1:

set “number” = the input positive integer

set “times” = 0

while and set the “number” > 0:

    a = number use 2 to get Modulus

    b = number use 2 to Floor division

    “answer” set to use the reminder a to multiply the 10 \*\* times

    times need to + 1 after one loop

return the binary number “answer”

### Q2:

set text = “COMP has made significant contributions to research that makes impact, keeping up with the knowledge advancement and global development in computing and information technology and facilitates technology transfer. It engages in a full and extensive spectrum of six research areas, including Artificial Intelligence and Robotics; Cyber Security and Privacy; Data Science, Information Retrieval and Human Computer Interaction; Fundamentals and Software; Networking and Mobile Computing; and Vision, Language and Graphics. It demonstrates its research capabilities through impressive records of winning competitive research grants, high-quality publications in prestigious journals and conferences, and strong industrial collaborations.”

set a = 0 # which help to count the words which have >= 5 letters

List L = text separate the words to the text list

for each word in text in list L:

    if the letters of text >= 5:

        set a = a + 1

        printout the words which have letters >= 5

    else:

        do not +1, jump to the next

return the number a

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### Q3:

The Bob act like a procedure because no output. According to the Lecture 2 PPT, “A function returning no value is often called a procedure”, and this story, do not have output, which is return no value, so this is a procedure. Also, the function need have a result, but procedure is more in process.

### Q4:

```
Ca:\WINDOWS\system32\cmd.exe - python
Microsoft Windows [Version 10.0.19043.1237]
(c) Microsoft Corporation. All rights reserved.

C:\Users\David>python
Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
Type 'help', 'copyright', 'credits' or 'license' for more information.
>>> number = 17
>>> a = number % 2
>>> a_a = number // 2
>>> b = a_a % 2
>>> b_a = a_a // 2
>>> c = b_a % 2
>>> d = c_a // 2
>>> e = d_a % 2
>>> str(int(e)) + str(int(d)) + str(int(c)) + str(int(b)) + str(int(a))
'10001'
>>>
```

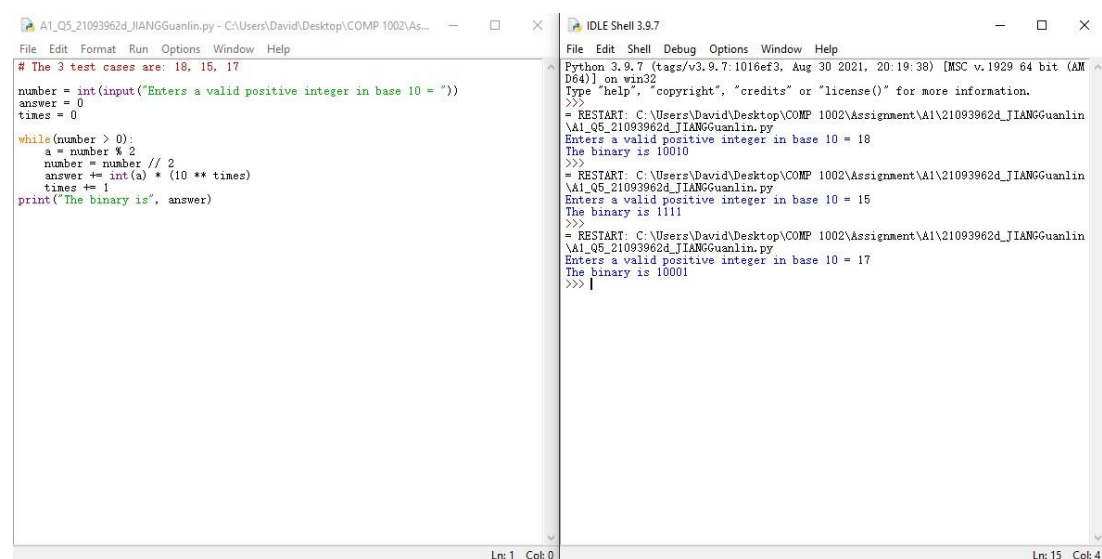
The Binary of 17 is 10001.

Verify:

```
Ca:\WINDOWS\system32\cmd.exe - python
Microsoft Windows [Version 10.0.19043.1237]
(c) Microsoft Corporation. All rights reserved.

C:\Users\David>python
Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
Type 'help', 'copyright', 'credits' or 'license' for more information.
>>> a = 17
>>> bin(a)
'0b10001'
>>>
```

### Q5: (Additional Image)



The screenshot shows a Python script in a file editor and its execution output in the IDLE Shell. The script is designed to convert a decimal number to its binary representation using a loop. It prompts the user to enter a valid positive integer in base 10. The output shows three test cases: 18, 15, and 17, with their corresponding binary representations: 10010, 1111, and 10001.

```
# The 3 test cases are: 18, 15, 17
number = int(input("Enter a valid positive integer in base 10 = "))
answer = 0
times = 0

while(number > 0):
    a = number % 2
    number = number // 2
    answer += int(a) * (10 ** times)
    times += 1
print("The binary is", answer)
```

```
Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
Type 'help', 'copyright', 'credits' or 'license()' for more information.
>>> = RESTART: C:\Users\David\Desktop\COMP 1002\Assignment\A1\21093962d_JIANGGuanlin
Enter a valid positive integer in base 10 = 18
The binary is 10010
>>> = RESTART: C:\Users\David\Desktop\COMP 1002\Assignment\A1\21093962d_JIANGGuanlin
Enter a valid positive integer in base 10 = 15
The binary is 1111
>>> = RESTART: C:\Users\David\Desktop\COMP 1002\Assignment\A1\21093962d_JIANGGuanlin
Enter a valid positive integer in base 10 = 17
The binary is 10001
>>>
```