

Question 1)

- 1)F
- 2)T
- 3)F
- 4)T
- 5)T
- 6)F
- 7)T
- 8)F
- 9)T
- 10)

Question 2)

In the if statement, it checks the condition and if the condition is true it evaluates if block otherwise it evaluates else or other blocks. In the while statements it checks the condition if the condition is true it evaluates while block otherwise it evaluates rest of the code. I think that sentence is true and we can use while and break combination instead of the if statement. For example:

```
a = 5
```

```
if(a == 5):  
    print("True")
```

```
while(a == 5):  
    print("True")  
    break
```

In Python these two statements do the same thing. They check whether 'a' is 5 or not and if it is, they just print a message which is "True".

Question 3)

```
void insertNode(struct Node **headPtr, int data) {
    struct Node newNode = malloc(sizeof(struct Node));
    if(newNode!= NULL){
        newNode->data = data;
        newNode->npx = XOR(*headPtr,NULL);

        if(headPtr!= NULL){
            struct Node nextOfCurrent = (*headPtr)->npx;
            (*headPtr)->npx = XOR(&nextOfCurrent,&newNode);
            headPtr = &newNode;
        }
        else{
            headPtr = &newNode;
        }
    }
}

void forwardTraverse(struct Node *headPtr){
    if(headPtr!=NULL){
        struct Node *previousNode = headPtr;
        struct Node *currentNode = headPtr->npx;
        while (XOR(previousNode , currentNode)!=0){
            previousNode = currentNode;
            currentNode = currentNode->npx;
        }
    }else{
        printf("The LinkedList is Empty");
    }
}
```

Question 4)

1) **SMALLTALK**

- **First Introduce:** 1972 (Stable Version 1980)
- **Developers:** Alan Kay, Dan Ingalls, Adele Goldberg, Ted Kaehler, Scott Wallace, Peter Deutsch.
- Smalltalk is Object Oriented (Actually we can say it is the father of OOP's), dynamically typed language. It was designed and created in part for educational use, specifically for constructionist learning at the Learning Research Group in "XeroxParc". Smalltalk was created as the language underpinning the "new world" of computing exemplified by "human-computer-symbiosis". As a result of its development at "Xerox PARC", which works very deep in the field of graphical user interfaces, Smalltalk was used to produce prototypes of WIMP (Windows, Icons, Menus, Pointers) systems. Steve Jobs was also influenced by the smalltalk user interface and created the macintosh computer.
- Smalltalk took second place for "most loved programming language" in the Stack Overflow Developer Survey in 2017 but it wasn't among the first 26 but I think it is still using in anywhere in the world.

2) **BASIC(Beginners' All-purpose Symbolic Instruction Code)**

- **First Introduce:** 1964
- **Developers:** John G. Kemeny, Thomas E. Kurtz
 - At that time nearly all use of computers required writing custom software, which was something only scientists and mathematicians tended to learn. They wanted to enable student in fields there than scientists and mathematicians. And they introduce another things is that Dartmouth Time Sharing System (DTSS) it allows multiple users to edit and run BASIC programs at the same time that's amazing. In early it generally used for hobby. Microsoft later released the Quick Basic compiler for Personal computers. The BASIC texts written with this were able to be translated into machine code, thus gaining speed. There is still the Visual Basic language, which has a wide usage area, and even certain parts of Windows have been written with it.

I didn't know this two languages before. But I think the most interesting is Smalltalk since it's syntax like English. For example these codes:

Transcript clear. "Clear the terminal."

Transcript show: 'Hello World'. "Print on the terminal."

Transcript space. "Put space on the terminal."

Transcript tab. "Put tab on the terminal."

'Hello' printOn: Transcript. "Append 'Hello' to window."

Transcript endEntry.

Period (.) is the statement separator. And "transcript" is terminal window. For all statements is like an English sentences and the separator is really interesting I think.