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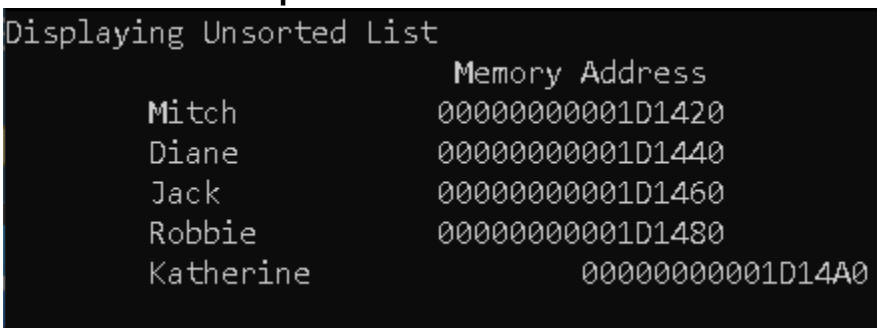
BS INFORMATION TECHNOLOGY 2-5
COMP 20063 DATA STRUCTURES AND ALGORITHM

Assessments / Activities

1. **Write a program that will initially create an UNSORTED list containing the following and then run the program:**
   Mitch
   Diane
   Jack
   Robbie
   Katherine

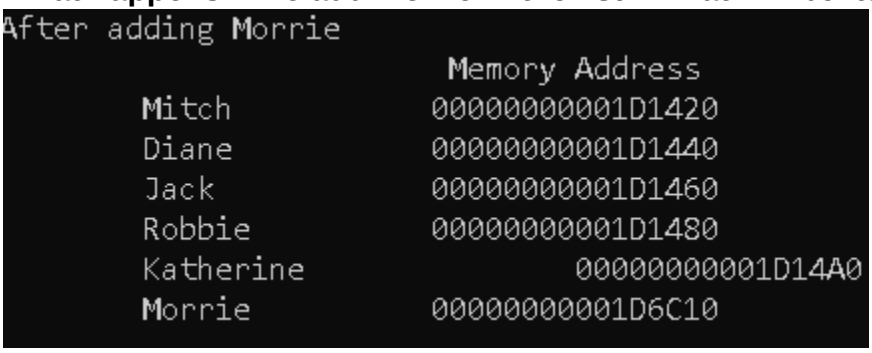
   Answer and explain the following questions below:

a) If we check the memory location of each element in the list, what would it be? What index represent each element?



- The memory location of each element in the list is separated by 20.

b) What happens if we add Morrie in the list? What will be its index value?



- He is added on the end with a lot larger difference between others.

c) **What does the new list look like? Where do you think Morrie should be placed and why**?

- Because Morrie is late, so the computer arranged him on different free memory.
- Last. Because he is the last one to add. And inserting him will only mess up the list.

With the same list above (with Morrie added), delete/remove Jack. Answer and explain the following questions below:

a) **What is the new list? Identify the elements of the list and its index**.

```
After removing Jack
                      Memory Address
        Mitch         00000000001D1420
        Diane         00000000001D1440
        0l↔           00000000001D1460
        Robbie        00000000001D1480
        Katherine             00000000001D14A0
        Morrie        00000000001D6C10
```

b) What happened to the former location occupied by Jack?

- The new list will free the value located in the former location. And the name will be erased.

2. Write a program that will initially create a SORTED list containing the following and then run the program:

Diane
Jack
Katherine
Mitch
Robbie

Answer and explain the following questions below:

1) If we check the memory location of each element in the list, what would it be? What index represent each element?

```
Displaying Sorted List
                      Memory Address
        Diane         0000000000C21420
        Jack          0000000000C21440
        Katherine             0000000000C21460
        Mitch         0000000000C21480
        Robbie        0000000000C214A0
```

- The memory location of each element in the list is separated by 20.

2) What happens if we add Morrie in the list? What will be its index value?

```
After adding Morrie
                      Memory Address
        Diane         0000000000C21420
        Jack          0000000000C21440
        Katherine             0000000000C21460
        Mitch         0000000000C21480
        Robbie        0000000000C214A0
        Morrie        0000000000C26C10
```

- He will be added on the end. Because he is last to add.

3) What does the new list look like? Where do you think Morrie should be placed and why?

- Because he is last to add so he is in the last.
- After Mitch because Morrie is below Mitch alphabetically.

With the same list above (with Morrie added), delete/remove Jack. Answer and explain the following questions below:

a) What is the new list? Identify the elements of the list and its index.

```
After removing Jack
                        Memory Address
        Diane           0000000000C21420
        Jack            0000000000C21440
        0lT             0000000000C21460
        Mitch           0000000000C21480
        Robbie          0000000000C214A0
        Morrie          0000000000C26C10
```

- The memory location of each element in the list is separated by 20.

b) What happened to the former location occupied by Jack?

- The new list will free the value located in the former location. And the name will be erased.