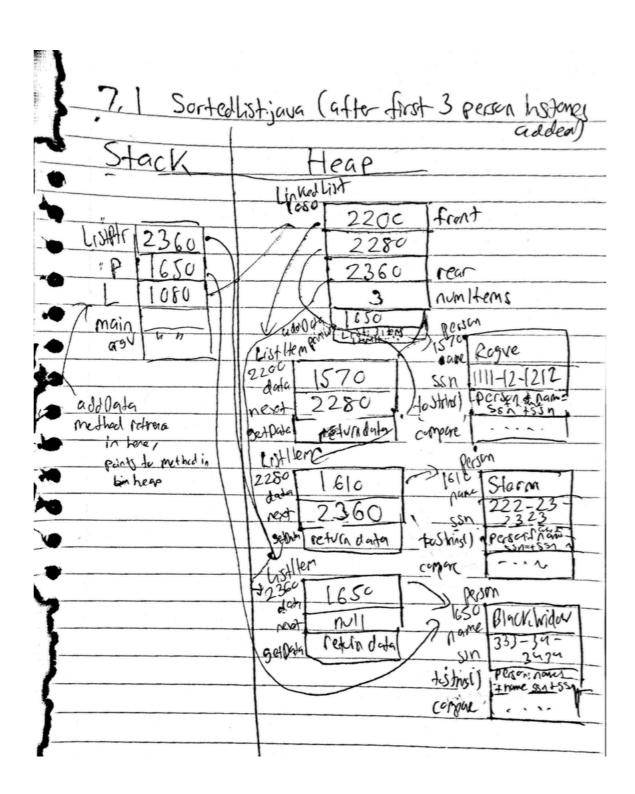
**Exercise 7.1:** Download and examine <u>SortedList.java</u>. Draw a complete memory picture after the first threePerson instances have been inserted. Then, trace through what happens on the *stack* all the way from main() to when the fourth Person. instance in added to the list.



| 7.1  |
|--|
| Stack all the way from man to when  Uth Person is Inserted |
| Linked List [ = new Linked List ();                        |
| Stack  |
| Main 41 (2) (2) (2) (2) (3)                                |
| Stack & Stack  |
| LISHPT 1200 LISHPT 1280  P 11570  P 1610  L 1080  L 1080   |
| main (" 5)   |
| ListAte 2360 Liad Data (new Person"                        |
| 1 P 11650 Jean Grey", 888-83-8985")<br>L 1080 Stack        |
| 1990 - 1690 - 1690 - 1690 - 1690 - 1690 - 1690             |
| 1080   ngh   n "   |

Exercise 7.2: Download and examine the <u>above program</u>. Draw a complete memory picture at the beginning of the while-loop in main(). What is the variable e pointing to?

The variable e is pointing to a ListEnumerator object in the heap. Sortedlist-3, 19va Memors Heap Linkedist HENMORALA front 4000 00 nexotElement 3000 200 4300 read oum Hems new Person 3300 add Data ( 2000 5000 Enmoration get Enumeration main OLDA Lixillen 13000 1 Rogve 3000 1111-12-1212 What is the next 4100 toStar() gettala return data Variable e compace Lixikn Pasc. 3/00 3100 Sterm 222-23-2323 4200 testure. gelibba return data COMPORE Passin 3200 1 BIGCK 3200 San 333-34-2434 4300 Lesties Settle Letradque COMMY 8 ason Jean Grea null 88585-8585 ni fullth roundak

Exercise 7.3: Download and examine the <u>above program</u>. Draw a complete memory picture at the beginning of the while-loop in main(). What is the variable e pointing to?

The variable e is pointing to a listItem. 2100 3000 e 33cu num lens LISTPHC add Data DEM GORAY) Printly 2300 assurational next acres Truc 2000 000 Main erson ustlen Rogve pame 2000 data 1111-12-1212 3100 nex (Jeliter) 9944 Vanable Storm name 2100 Sin 32cc LSZH41) 90/14 Black Marc 2200 S/n 3300 CHEST Jean Brey Jet 2300 6859 6859 ned mell Son Rose, 111-1212 teshin 901 Company

**Exercise 7.6:** Download, compile and execute the <u>above program</u>. Draw a complete memory picture to show why this doesn't work.

| picture to show why this doesn't work.   |
|--|
| 7.6 Memory Picture Sorted List 6. Java   |
| print List()   |
| 1/200 1/1/1/3/2001   |
| LinvedList )   |
| 3000 3000 2000 front Harl Block Willer   |
| 12 100 17 / Henry Jean Grey  |
| 12 4000 1 1150 2300 (1803 Regive   |
| Pun 2300 1200 3400 4 numitions than Storm  |
| 18 2300 11 120   |
| 1000 2300 3300 1 3300 1 1 1 1 1 1 1 1 1 1 1 1  |
| main lean Grey dat 2300 12 adds  |
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| S miller 2400 Xena data 2400 tore 520000 1255  |
| 888-8729787 next null 125  |
|  |
|  |

Exercise 7.7: The complete source with the above changes is available <u>here</u>. Compile and execute to see what happens. What do you observe? Write code to fix the problem.

The compiler cannot find the symbol "p" because p wasn't instantiated. Creating a new instance of person fixes this, the problem with the code is that the number of items are not updated. To fix this, the remove method should update the number of elements in the list and also it should set the appropriate links to the surrounding elements. In addition to this, the L2 instance of the LinkedList is changed by the blank out method when it shouldn't be.