yifan yang 40038814 comp 352 assignment 3

1 .

2.

F0,C1,B2,K3,J4,T7,P8,R9,A10,I21,L22,V43,Q44

explanation: E5 means element E at index 5

3.（1）

doubly linked list: because addFirst of array need O(n) while doubly linked list just need O(1)

(2)

doubly linked list: because addbefore\after of array may need O(n) if the position is index0, while doubly linked list just need O(1)

(3)

doubly linked list: because removal of array need O(n) if the position is index0 while doubly linked list just need O(1)

4.n=17,

so it should be

1

2

4

8

2

1. 10 17

(2) 10 25 40 19 45 16 12 8

15 17

(3) 10 14 13 8

15 25 40 19 45 16 12 9

18 17

(4) 10 8

15 14 13 9

17 25 40 19 45 16 12 11

18 20

(5)

8

10 9

15 14 13 11

17 25 40 19 45 16 12 13

18 20

removeMin

1. return 8

9

10 11

15 14 13 12

17 25 40 19 45 16 20 13

18

1. return 9

10

14 11

15 18 13 12

17 25 40 19 45 16 20 13

(3） return 10

11

14 12

15 18 13 13

17 25 40 19 45 16 20

(4) return 11

12

14 13

15 18 16 13

17 25 40 19 45 20

(5) return 12

13

14 13

15 18 16 20

17 25 40 19 45

(6) return 13

13

14 16

15 18 45 20

17 25 40 19

5.

insert 10

10

insert 17

10

17

insert 15

10

17 15

insert 25

10

17 15

25

insert 40

10

17 15

25 40

insert 19

10

17 15

25 40 19

insert 45

10

17 15

25 40 19 45

insert 16

10

16 15

17 40 19 45

25

insert 12

10

12 15

16 40 19 45

25 17

insert 8

8

10 15

16 12 19 45

25 17 40

insert 18

8

10 15

16 12 19 45

25 17 40 18

insert 14

8

10 14

16 12 15 45

25 17 40 18 19

insert 13

8

10 13

16 12 14 45

25 17 40 18 19 15

insert 9

8

10 9

16 12 14 13

25 17 40 18 19 15 45

insert 20

8

10 9

16 12 14 13

25 17 40 18 19 15 45 20

insert 11

8

10 9

11 12 14 13

16 17 40 18 19 15 45 20

25

insert 13

8

10 9

11 12 14 13

13 17 40 18 19 15 45 20

25 16