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Matkul : Algoritma dan Struktur Data

Alternative 1

1. Write the algorithm of queue mechanism using
    - Single linked list
    - Array alternative 1
    - Array alternative 2
    - Array alternative 3
2. Use the same infotype as before
3. Each member is to write 1 mechanism

Jawab :

· Single linked list
Algoritma:
- Simpan 2 reference: front → … → … →back
  enqueue(Benda x):
  - ❖ Buat sebuah node baru N yang datanya x
  - ❖ if queue sebelumnya empty, maka front = back = N
  - ❖ else tambahkan N di akhir (dan update back)
- dequeue():
  - ❖ Hapus elemen pertama: front = front.next

· Array alternative 1
Algoritma :

```
Add(P,3)
Add(P,4)
Add(P,2)
Del(P)
Del(P)
Add(P,5)
Del(P)
Del(P)
```

1	2	3	4	5
3	4	2		

Head = 1
Tail = 3
Is empty = True

1	2	3	4	5
2				

Head = 1
Tail = 0
Is empty = True

1	2	3	4	5
5	2			

Head = 1
Tail = 2
Is empty = True

1	2	3	4	5

Head = 0
Tail = 0
Is empty = False

· Array Alternative 2

Algoritma:

```
Add(P,3)
Add(P,4)
Add(P,2)
Del(P)
Del(P)
Add(P,5)
Del(P)
Add(P,6)
Add(P,7)
Del(P)
Del(P)
Del(P)
```

1	2	3	4	5
3	4	2		

Head = 1
Tail = 3
Is empty = True

1	2	3	4	5
2				

Head = 1
Tail = 0
Is empty = True

1	2	3	4	5

5	2			

Head = 1
Tail = 2
Is empty = True

1	2	3	4	5
2				

Head = 1
Tail = 0
Is empty = True

1	2	3	4	5
7	6	2		

Head = 1
Tail = 3
Is empty = True

1	2	3	4	5

Head = 0
Tail = 0
Is empty = False

· Array alternative 3

Algoritma:

```
Add(P,3)
Add(P,4)
Add(P,2)
Del(P)
Del(P)
Add(P,5)
Del(P)
Add(P,6)
Add(P,7)
Add(P,8)
Del(P)
Del(P)
Del(P)
Del(P)
```

1	2	3	4	5
3	4	2		

Head = 1
Tail = 3
Is empty = True

1	2	3	4	5
2				

Head = 1
Tail = 0
Is empty = True

1	2	3	4	5
5	2			

Head = 1
Tail = 2
Is empty = True

1	2	3	4	5
2				

Head = 1
Tail = 0
Is empty = True

1	2	3	4	5
8	7	6	2	

Head = 1
Tail = 3
Is empty = True

1	2	3	4	5

Head = 0
Tail = 0
Is empty = False