Nama: Arif Gunawan Hasiholan Siboro NPM:G1F021034

1.Write the algorithm of queue mechanism using

* + Single linked list
  + Array alternative 1
  + Array alternative 2
  + Array alternative 3

1. Use the same infotype as before
2. 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