Laporan Tugas AI 4

Dibuat Oleh:

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"Alur Jasa Transportasi Barang Menggunakan GSP "

A. Detail Tugas

Suatu perusahaan Jasa Transportasi Barang beroperasi untuk mengantarkan muatan besar antar kota. Karena besarnya muatan yang ditransportasikan, setiap kendaraan hanya bisa mengangkut maksimum SATU barang dalam sekali pengantaran. Buatlah desain Goal Stack Planning untuk mengatur urutan pengiriman EMPAT BARANG (B1, B2, B3, B4) yang dilakukan SATU MOBIL (M1) dalam EMPAT KOTA (K1, K2, K3, K4). Jika Operasi yang bisa dilakukan oleh kendaraan adalah LOAD(B,M,K), UNLOAD(B,M,K), dan TRAVEL(M, K_{asal}, K_{tujuan}).

B. Pembahasan

1. Current State

INITIAL STATE		
ON(M1, K1)	CAREMPTY	ON(B1, K1)
ON(B2, K2)	ON(B3, K3)	ON(B4, K2)

2. Goal State

GOAL STATE		
ON(B1, K2)	ON(B2, K3)	ON(B3, K1)
ON(B4, K4)		

3. State

Daftar State Barang	
Nama State	Keterangan
ON(B, K)	Barang B berada di kota K
IN(B, M)	Barang B berada di dalam mobil M

Daftar State Kendaraan	
Nama State	Keterangan
CAREMPTY	Bagasi mobil masih kosong
ON(M, K)	Mobil M berada di kota K

4. Operasi

- LOAD(B, M, K) : Memasukkan barang B yang berada di kota K ke mobil M

	LOAD (B, M, K)	
PRE	CAREMPTY	ON(B, K)
	ON(M, K)	
ADD	IN(B, M)	
DEL	ON(B, K)	CAREMPTY

- UNLOAD(B, M, K) : Mengeluarkan barang B yang berada di kota K ke mobil M

	UNLOAD (B, M, K)	
PRE	ON(M, K)	IN(B, M)
ADD	ON(B, K)	CAREMPTY
DEL	ON(M, K)	IN(B, M)

- TRAVEL(M, $K_{asal,}$ K_{tujuan}) : Memindahkan mobil M dari Kota asal ke kota tujuan

	TRAVEL (M, Ka, Kt)	
PRE	ON(M, Ka)	IN(B, M)
ADD	ON (M, Kt)	
DEL	ON(M, Ka)	IN(B, M)

5. Iterasi

Berikut hasil iterasi dari pemecahan masalah jasa transportasi barang menggunakan GSP:

TRACING KASUS

STACK	
LOAD(B1, M1, K1)	
~~IN(B1, M1)~~	
ON(M1, K2)	**LOAD(B1, M1, K1)**
ON(M1, K2) ^ IN(B1, M1)	ON(M1, K2)
UNLOAD(B1, M1, K2)	ON(M1, K2) ^ IN(B1, M1)
~~ON(B1, K2)~~	**UNLOAD(B1, M1, K2)**
ON(B2, K3)	ON(B2, K3)
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(M1, K1)	CAREMPTY	ON(B1, K1)
ON(B2, K2)	ON(B3, K3)	ON(B4, K2)

QUEUE LIST

KETERANGAN
Barang B1 berada di kota K2 sehingga barang B1 harus di UNLOAD(B1, M1, K2) dari mobil M1 terlebih dahulu. Kemudian ganti IN(B1, M1) dengan LOAD(B1, M1, K1)

STACK	
~~ON(M1, K1)~~	
~~ON(B1, K1)~~	
~~CAREMPTY~~	
~~CAREMPTY ^ ON(B1, K1) ^ ON (M1, K1)~~	
~~**LOAD(B1, M1, K1)**~~	
ON(M1, K2)	ON(M1, K2)
ON(M1, K2) ^ IN(B1, M1)	ON(M1, K2) ^ IN(B1, M1)
UNLOAD(B1, M1, K2)	**UNLOAD(B1, M1, K2)**
ON(B2, K3)	ON(B2, K3)
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
~~ON(M1, K1)~~	~~CAREMPTY~~	~~ON(B1, K1)~~
ON(B2, K2)	ON(B3, K3)	ON(B4, K2)
IN(B1, M1)		

QUEUE LIST
LOAD(B1, M1, K1)

KETERANGAN
Karena pre-condition LOAD(B1, M1, K1) memenuhi current state maka LOAD(B1, M1, K1) masuk ke QUEUE dan Current state berubah

STACK	
~~IN(B1, M1)~~	
~~ON(M1, K1)~~	
~~ON(M1, K1) ^ IN(B1, M1)~~	
TRAVEL(M1, K1, K2)	**TRAVEL(M1, K1, K2)**
ON(M1, K2)	ON(M1, K2)
ON(M1, K2) ^ IN(B1, M1)	ON(M1, K2) ^ IN(B1, M1)
UNLOAD(B1, M1, K2)	**UNLOAD(B1, M1, K2)**
ON(B2, K3)	ON(B2, K3)
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
~~ON(M1, K1)~~	ON(B2, K2)	ON(B3, K3)
ON(B4, K2)	~~IN(B1, M1)~~	

QUEUE LIST
LOAD(B1, M1, K1)

KETERANGAN
Ganti ON(M1, K2) dengan TRAVEL(M1, K1, K2) kemudian jabarkan. Setelah dijabarkan state hasil jabaran tersebut ternyata memenuhi current state maka state tersebut di hapus

STACK	
~~**TRAVEL(M1, K1, K2)**~~	
ON(M1, K2)	ON(M1, K2)
ON(M1, K2) ^ IN(B1, M1)	ON(M1, K2) ^ IN(B1, M1)
UNLOAD(B1, M1, K2)	**UNLOAD(B1, M1, K2)**
ON(B2, K3)	ON(B2, K3)
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B2, K2)	ON(B3, K3)	ON(B4, K2)
ON(M1, K2)		

QUEUE LIST	
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)

KETERANGAN
Dikarenakan operator berada di awal stack maka masukkan operator ke dalam antrian (QUEUE) dan update current state

STACK	
~~ON(M1, K2)~~	
~~ON(M1, K2) ^ IN(B1, M1)~~	
UNLOAD(B1, M1, K2)	**UNLOAD(B1, M1, K2)**
ON(B2, K3)	ON(B2, K3)
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B2, K2)	ON(B3, K3)	ON(B4, K2)
~~ON(M1, K2)~~		

QUEUE LIST	
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)

KETERANGAN
Dikarenakan penjabaran state tersebut sama dengan current state maka state tersebut dihapus

STACK	
~~**UNLOAD(B1, M1, K2)**~~	
ON(B2, K3)	ON(B2, K3)
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B2, K2)	ON(B3, K3)	ON(B4, K2)
ON(B1, K2)	CAREMPTY	ON(M1, K2)

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)

KETERANGAN
Dikarenakan operator berada di awal stack maka operator masuk ke antrian dan update current state

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STACK	
LOAD(B2, M1, K2)	
~~IN(B2, M1)~~	
ON(M1, K3)	**LOAD(B2, M1, K2)**
ON(M1, K3) ^ IN(B2, M1)	ON(M1, K3)
UNLOAD(B2, M1, K3)	ON(M1, K3) ^ IN(B2, M1)
~~ON(B2, K3)~~	**UNLOAD(B2, M1, K3)**
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B2, K2)	ON(B3, K3)	ON(B4, K2)
ON(B1, K2)	CAREMPTY	ON(M1, K2)

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)

KETERANGAN
Ganti ON(B2, K3) menjadi UNLOAD(B2, M1, K3) kemudian Jabarkan. Setelah jabarkan ganti IN(B2, M1) dengan LOAD(B2, M1, K2)

STACK	
~~ON(M1, K2)~~	
~~ON(B2, K2)~~	
~~CAREMPTY~~	
~~CAREMPTY ^ ON(B2, K2) ^ ON (M1, K2)~~	
~~LOAD(B2, M1, K2)~~	
ON(M1, K3)	ON(M1, K3)
ON(M1, K3) ^ IN(B2, M1)	ON(M1, K3) ^ IN(B2, M1)
UNLOAD(B2, M1, K3)	**UNLOAD(B2, M1, K3)**
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
~~ON(B2, K2)~~	ON(B3, K3)	ON(B4, K2)
ON(B1, K2)	~~CAREMPTY~~	~~ON(M1, K2)~~
IN(B2, M1)		

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)		

KETERANGAN
Karena pre-condition LOAD(B2, M1, K2) memenuhi current state maka LOAD(B2, M1, K2) masuk ke QUEUE dan Current state berubah

STACK	
~~IN(B2, M1)~~	
~~ON(M1, K2)~~	
~~ON(M1, K2) ^ IN(B2, M1)~~	
TRAVEL(M1, K2, K3)	
~~ON(M1, K3)~~	**TRAVEL(M1, K2, K3)**
ON(M1, K3) ^ IN(B2, M1)	ON(M1, K3) ^ IN(B2, M1)
UNLOAD(B2, M1, K3)	**UNLOAD(B2, M1, K3)**
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B3, K3)	ON(B4, K2)
~~IN(B2, M1)~~	~~ON(M1, K2)~~	

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)		

KETERANGAN
Ganti ON(M1, K3) dengan TRAVEL(M1, K2, K3) kemudian jabarkan. Setelah dijabarkan state hasil jabaran tersebut ternyata memenuhi current state maka state tersebut di hapus

STACK	
~~TRAVEL(M1, K2, K3)~~	
ON(M1, K3) ^ IN(B2, M1)	ON(M1, K3) ^ IN(B2, M1)
UNLOAD(B2, M1, K3)	**UNLOAD(B2, M1, K3)**
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B3, K3)	ON(B4, K2)
ON(M1, K3)		

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	

KETERANGAN
Dikarenakan operator berada di awal stack maka masukkan operator ke dalam antrian (QUEUE) dan update current state

STACK	
~~ON(M1, K3) ^ IN(B2, M1)~~	
UNLOAD(B2, M1, K3)	**UNLOAD(B2, M1, K3)**
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B3, K3)	ON(B4, K2)
~~ON(M1, K3)~~		

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	

KETERANGAN
Dikarenakan penjabaran state tersebut sama dengan current state maka state tersebut dihapus

STACK	
~~**UNLOAD(B2, M1, K3)**~~	
ON(B3, K1)	ON(B3, K1)
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B3, K3)	ON(B4, K2)
ON(B2, K3)	CAREMPTY	ON(M1, K3)

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)

KETERANGAN
Dikarenakan operator berada di awal stack maka operator masuk ke antrian dan update current state

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STACK	
LOAD(B3, M1, K3)	
~~IN(B3, M1)~~	
ON(M1, K1)	**LOAD(B3, M1, K3)**
ON(M1, K1) ^ IN(B3, M1)	ON(M1, K1)
UNLOAD(B3, M1, K1)	ON(M1, K1) ^ IN(B3, M1)
~~ON(B3, K1)~~	**UNLOAD(B3, M1, K1)**
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B3, K3)	ON(B4, K2)
ON(B2, K3)	CAREMPTY	ON(M1, K3)

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)

KETERANGAN
Ganti ON(B3, K1) menjadi UNLOAD(B3, M1, K1) kemudian Jabarkan. Setelah jabarkan ganti IN(B3, M1) dengan LOAD(B3, M1, K3)

STACK	
~~ON(M1, K3)~~	
~~ON(B3, K3)~~	
~~CAREMPTY~~	
~~CAREMPTY ^ ON(B3, K3) ^ ON (M1, K3)~~	
~~**LOAD(B3, M1, K3)**~~	
ON(M1, K1)	ON(M1, K1)
ON(M1, K1) ^ IN(B3, M1)	ON(M1, K1) ^ IN(B3, M1)
UNLOAD(B3, M1, K1)	**UNLOAD(B3, M1, K1)**
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	~~ON(B3, K3)~~	ON(B4, K2)
ON(B2, K3)	~~CAREMPTY~~	~~ON(M1, K3)~~
IN(B3, M1)		

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)		

KETERANGAN
Karena pre-condition LOAD(B2, M1, K2) memenuhi current state maka LOAD(B2, M1, K2) masuk ke QUEUE dan Current state berubah

STACK	
~~IN(B3, M1)~~	
~~ON(M1, K3)~~	
~~ON(M1, K3) ^ IN(B3, M1)~~	
TRAVEL(M1, K3, K1)	
~~ON(M1, K1)~~	**TRAVEL(M1, K3, K1)**
ON(M1, K1) ^ IN(B3, M1)	ON(M1, K1) ^ IN(B3, M1)
UNLOAD(B3, M1, K1)	**UNLOAD(B3, M1, K1)**
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B4, K2)
~~IN(B3, M1)~~	~~ON(M1, K3)~~	

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)		

KETERANGAN
Ganti ON(M1, K1) dengan TRAVEL(M1, K3, K1) kemudian jabarkan. Setelah dijabarkan state hasil jabaran tersebut ternyata memenuhi current state maka state tersebut di hapus

STACK	
~~**TRAVEL(M1, K3, K1)**~~	
ON(M1, K1) ^ IN(B3, M1)	ON(M1, K1) ^ IN(B3, M1)
UNLOAD(B3, M1, K1)	**UNLOAD(B3, M1, K1)**
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B4, K2)
ON(M1, K1)		

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	

KETERANGAN
Dikarenakan operator berada di awal stack maka masukkan operator ke dalam antrian (QUEUE) dan update current state

STACK	
~~ON(M1, K1) ^ IN(B3, M1)~~	
UNLOAD(B3, M1, K1)	**UNLOAD(B3, M1, K1)**
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B4, K2)
~~ON(M1, K1)~~		

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	

KETERANGAN
Dikarenakan penjabaran state tersebut sama dengan current state maka state tersebut dihapus

STACK	
UNLOAD(B3, M1, K1)	
ON(B4, K4)	ON(B4, K4)

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B4, K2)
ON(B3, K1)	CAREMPTY	ON(M1, K1)

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)

KETERANGAN
Dikarenakan operator berada di awal stack maka operator masuk ke antrian dan update current state

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STACK	
LOAD(B4, M1, K2)	
~~IN(B4, M1)~~	
ON(M1, K4)	**LOAD(B4, M1, K2)**
ON(M1, K4) ^ IN(B4, M1)	ON(M1, K4)
UNLOAD(B4, M1, K4)	ON(M1, K4) ^ IN(B4, M1)
~~ON(B4, K4)~~	**UNLOAD(B4, M1, K4)**

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B4, K2)
ON(B3, K1)	CAREMPTY	ON(M1, K1)

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)

KETERANGAN
Ganti ON(B4, K4) menjadi UNLOAD(B4, M1, K4) kemudian Jabarkan. Setelah jabarkan ganti IN(B4, M1) dengan LOAD(B4, M1, K2)

STACK	
ON(M1, K2)	
~~ON(B4, K2)~~	
~~CAREMPTY~~	
CAREMPTY ^ ON(B4, K2) ^ ON (M1, K2)	ON(M1, K2)
LOAD(B4, M1, K2)	CAREMPTY ^ ON(B4, K2) ^ ON (M1, K2)
ON(M1, K4)	**LOAD(B4, M1, K2)**
ON(M1, K4) ^ IN(B4, M1)	ON(M1, K4)
UNLOAD(B4, M1, K4)	ON(M1, K4) ^ IN(B4, M1)
~~ON(B4, K4)~~	**UNLOAD(B4, M1, K4)**

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	~~ON(B4, K2)~~
ON(B3, K1)	~~CAREMPTY~~	ON(M1, K1)

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)

KETERANGAN
Jabarkan LOAD(B4, M1, K2) dan hapus state apabila memenuhi current state

STACK	
~~ON(M1, K1)~~	
~~ON(M1, K1)~~	
TRAVEL(M1, K1, K2)	
~~ON(M1, K2)~~	**TRAVEL(M1, K1, K2)**
CAREMPTY ^ ON(B4, K2) ^ ON (M1, K2)	CAREMPTY ^ ON(B4, K2) ^ ON (M1, K2)
LOAD(B4, M1, K2)	**LOAD(B4, M1, K2)**
ON(M1, K4)	ON(M1, K4)
ON(M1, K4) ^ IN(B4, M1)	ON(M1, K4) ^ IN(B4, M1)
UNLOAD(B4, M1, K4)	**UNLOAD(B4, M1, K4)**

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	~~ON(B4, K2)~~
ON(B3, K1)	~~CAREMPTY~~	~~ON(M1, K1)~~

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)

KETERANGAN
Ganti ON(M1, K2) menjadi TRAVEL(M1, K2, K1) dan jabarkan apabila sesuai dengan current state maka hapus

STACK	
~~**TRAVEL(M1, K1, K2)**~~	
CAREMPTY ^ ON(B4, K2) ^ ON (M1, K2)	CAREMPTY ^ ON(B4, K2) ^ ON (M1, K2)
LOAD(B4, M1, K2)	**LOAD(B4, M1, K2)**
ON(M1, K4)	ON(M1, K4)
ON(M1, K4) ^ IN(B4, M1)	ON(M1, K4) ^ IN(B4, M1)
UNLOAD(B4, M1, K4)	**UNLOAD(B4, M1, K4)**

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B3, K1)
CAREMPTY	ON(M1, K2)	

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)
TRAVEL(M1, K1, K2)		

KETERANGAN
Dikarenakan operator berada di stack paling awal maka operator dimasukkan ke queue dan update current state

STACK	
~~CAREMPTY ^ ON(B4, K2) ^ ON (M1, K2)~~	
LOAD(B4, M1, K2)	**LOAD(B4, M1, K2)**
ON(M1, K4)	ON(M1, K4)
ON(M1, K4) ^ IN(B4, M1)	ON(M1, K4) ^ IN(B4, M1)
UNLOAD(B4, M1, K4)	**UNLOAD(B4, M1, K4)**

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B3, K1)
~~CAREMPTY~~	~~ON(M1, K2)~~	

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)
TRAVEL(M1, K1, K2)		

KETERANGAN
Dikarenakan state yang berada di paling awal stack memenuhi current state maka state tersebut dihapus

STACK	
~~**LOAD(B4, M1, K2)**~~	
ON(M1, K4)	ON(M1, K4)
ON(M1, K4) ^ IN(B4, M1)	ON(M1, K4) ^ IN(B4, M1)
UNLOAD(B4, M1, K4)	**UNLOAD(B4, M1, K4)**

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B3, K1)
	IN(B4, M1)	

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)
TRAVEL(M1, K1, K2)	LOAD(B4, M1, K2)	

KETERANGAN
Dikarenakan state yang berada di paling awal stack adalah operator maka operator tersebut dimasukkan ke queue dan update current state

STACK	
~~IN(B4, M1)~~	
~~ON(M1, K2)~~	
~~ON(M1, K2) ^ IN(B4, M1)~~	
TRAVEL(M1, K2, K4)	
~~ON(M1, K4)~~	**TRAVEL(M1, K2, K4)**
ON(M1, K4) ^ IN(B4, M1)	ON(M1, K4) ^ IN(B4, M1)
UNLOAD(B4, M1, K4)	**UNLOAD(B4, M1, K4)**

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B3, K1)
	~~IN(B4, M1)~~	

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)
TRAVEL(M1, K1, K2)	LOAD(B4, M1, K2)	

KETERANGAN
Ganti ON(M1, K4) menjadi TRAVEL(M1, K2, K4) kemudian jabarkan dan apabila sama dengan current state maka di hapus

STACK	
~~**TRAVEL(M1, K2, K4)**~~	
ON(M1, K4) ^ IN(B4, M1)	ON(M1, K4) ^ IN(B4, M1)
UNLOAD(B4, M1, K4)	**UNLOAD(B4, M1, K4)**

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B3, K1)
	ON(M1, K4)	

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)
TRAVEL(M1, K1, K2)	LOAD(B4, M1, K2)	TRAVEL(M1, K2, K4)

KETERANGAN
Dikarenakan state yang berada di awal stack merupakan operator maka hapus operator dari stack dan pindahkan ke queue serta update current state

STACK	
~~ON(M1, K4) ^ IN(B4, M1)~~	
~~**UNLOAD(B4, M1, K4)**~~	

CURRENT STATE		
ON(B1, K2)	ON(B2, K3)	ON(B3, K1)
ON(M1, K4)	ON(B4, K4)	

QUEUE LIST		
LOAD(B1, M1, K1)	TRAVEL(M1, K1, K2)	UNLOAD(B1, M1, K2)
LOAD(B2, M1, K2)	TRAVEL(M1, K2, K3)	UNLOAD(B2, M1, K3)
LOAD(B3, M1, K3)	TRAVEL(M1, K3, K1)	UNLOAD(B3, M1, K1)
TRAVEL(M1, K1, K2)	LOAD(B4, M1, K2)	TRAVEL(M1, K2, K4)
UNLOAD(B4, M1, K4)		

KETERANGAN
Dikarenakan state yang berada pada awal stack memenuhi current state maka state tersebut dihapus dan masukkan operator ke queue