Waste Collection Optimization Project

Planning and Reasoning



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General Problem

- Begin at the initial position (I1).
- Move to room (R1) to collect one piece of garbage.
- Carry the garbage to the respective dustbin (O1, PL1, PA1).
- Continue collecting and disposing of garbage until all is collected or dustbins are full.
- When a dustbin is full, replace the bag, retrieve a new bag from B1, and dispose of the old bag at city bins (OCB1, PLC1, PAC1).
- Trucks from respective dumpyards (OD1, PLD1, PAD1) collect waste from all city bins and transport it back to dumpyards.

General Problem



Different Problems

Problem No.	Person	Rooms	Garbage	Dustbin	Dustbin Limit	City Bins	Trucks	Truck Limit	Dump yard	Matric
Flobtelli No.	reison	NOUIIIS	Garbage	Dustbill	Dustbill Ellillit	City bills	HUCKS	HUCK LIIIII	Dunip yaru	Matric
Problem 1	1 (Person For Room 1)	1	1 (Organic)	1 (Organic)	2 (Half, Full)	1 (Organic)	1 (Organic)	1 (CityBin 1)	1 (Organic)	Total cost only
Problem 2	1 (Person For Room 1)	1	2 (Organic)	1 (Organic)	2 (Half, Full)	1 (Organic)	1 (Organic)	1 (CityBin 1)	1 (Organic)	Total cost only
	1 (Person For		2 (Organic, Plastic,	1 (Organic, Plastic,		1 (Organic, Plastic,	1 (Organic, Plastic,		1 (Organic, Plastic,	
Problem 3	Room 1) 2 (Persons For Room 1,	1	Paper) 2 (Organic, Plastic,	Paper) 1 (Organic, Plastic,	2 (Half, Full)	Paper) 1 (Organic, Plastic,	Paper) 1 (Organic, Plastic,	1 (CityBin 1)	Paper) 1 (Organic, Plastic,	Total cost only
Problem 4	Room 2)	2	Paper)	Paper)	2 (Half, Full)	Paper)	Paper)	1 (CityBin 1)	Paper)	Total cost only
	2 (Persons For Room 1,	2	2 (Organic, Plastic,	1 (Organic, Plastic,	2 (Half Full)	2 (Organic, Plastic,	1 (Organic, Plastic,	2 (CityBin 1,	1 (Organic, Plastic,	Total aget only
Problem 5	Room 2)	2	Paper)	Paper)	2 (Half, Full)	Paper)	Paper)	City Bin 2)	Paper)	Total cost only
Problem 6	2 (Persons For Room 1, Room 2)	2	2 (Organic, Plastic, Paper)	1 (Organic, Plastic, Paper)	2 (Half, Full)	2 (Organic, Plastic, Paper)	1 (Organic, Plastic, Paper)	2 (CityBin 1, City Bin 2)	1 (Organic, Plastic, Paper)	Distance cost calculation
	3 (Persons For Room 1, Room 2,	2	2 (Organic, Plastic,	1 (Organic, Plastic,	Z (Hall, Full)	2 (Organic, Plastic,	1 (Organic, Plastic,	2 (CityBin 1,	1 (Organic, Plastic,	Distance cost
Problem 7	Room 3)	3	Paper)	Paper)	2 (Half, Full)	Paper)	Paper)	City Bin 2)	Paper)	calculation

Domain

Domain is different on the basis of metrics:

- Total Cost Only
- Distance Cost Calculation

Domain (Continue)

Objects:

- DustBin
- Location
- Bags
- Room
- Human
- HumanCarry
- garbageSubstance
- CityBin
- Truck
- Quantity
- Dumpyard

Domain (Continue)

Predicates:

- is_loc ?obj object ?loc location
- have_garbage ?garbage garbageSubstance
- garbage_in_bin ?garbage garbageSubstance ?bin DustBin
- bin_full ?bin DustBin
- bin_half ?bin DustBin
- bin_clear ?bin DustBin
- have_newBag ?bag newBag
- have_oldBag ?bag oldBag
- related ?thing_1 ?thing_2 object
- person_hands_full ?person_capacity HumanCarry
- person_hands_empty ?person_capacity HumanCarry
- old_bag_dumb ?cityBin CityBin ?q quantity
- collected_cityBins_garbage ?cityBin Citybin ?truck Truck
- disposed_cityBins_garbage ?truck Truck
- deposited_bin_garbage ?bin DustBin
- plus1 ?q1 ?q2 quantity
- Truck_capacity ?truck Truck ?q quantity
- between ?obj object ?q_less_one ?q quantity

Domain (Continue)

Actions:

- Move_To_Bin
- Move
- Move_To_Room
- Fill_Bin_Partially
- Fill_Bin_Completely
- Get_New_Bag
- Move_To_Bin_To_Change_Bag
- Detach_Old_Bag
- Move_Person_To_CityBin
- Load_City_Garbage
- UnLoad_City_Garbage

Metrics

In this project, I am using 2 different metrics.

Total Cost Only:

Cost=1 (for every action), Minimize total cost

Distance Cost Calculation:

Cost (Depend upon diatance), Minimze total cost

Distance Cost Calculation (Problem File)

Cost (Depend upon diatance), Minimze total cost

```
(= (distance OD1 OD1) 0); Oranic Dumpyard
(= (distance PLD1 PLD1) 0); Paper Dumpyard
(= (distance PAD1 PAD1) 0); Plastic Dumpyard
(= (distance OCB1 OCB1) 0); Organic City Bin 1
(= (distance PLCB1 PLCB1) 0); Paper City Bin 1
(= (distance PACB1 PACB1) 0); Plastic City Bin 1
(= (distance OCB2 OCB2) 0); Organic City Bin 2
(= (distance PLCB2 PLCB2) 0); Paper City Bin 2
(= (distance PACB2 PACB2) 0); Plastic City Bin 2
(= (distance OD1 OCB2) 1); Organic Dumpyard to Organic City Bin 2
(= (distance OCB2 OCB1) 1); Organic City Bin 2 to Organic City Bin 1
(= (distance OCB1 OD1) 1); Organic City Bin 1 to Organic Dumpyard
(= (distance PAD1 PACB2) 1); Paper Dumpyard to Paper City Bin 2
(= (distance PACB2 PACB1) 1); Paper City Bin 2 to Paper City Bin 1
(= (distance PACB1 PAD1) 1); Paper City Bin 1 to Paper Dumpyard
(= (distance PLD1 PLCB2) 1); Paper Dumpyard to Paper City Bin 2
(= (distance PLCB2 PLCB1) 1); Paper City Bin 2 to Paper City Bin 1
(= (distance PLCB1 PLD1) 1); Paper City Bin 1 to Paper Dumpyard
(= (distance OD1 OCB1) 2); Organic Dumpyard to Organic City Bin 1
(= (distance OCB1 OCB2) 2); Organic City Bin 1 to Organic City Bin 2
(= (distance OCB2 OD1) 2); Organic City Bin 2 to Organic Dumpyard
(= (distance PAD1 PACB1) 2); Paper Dumpyard to Paper City Bin 1
(= (distance PACB1 PACB2) 2); Paper City Bin 1 to Paper City Bin 2
(= (distance PACB2 PAD1) 2); Paper City Bin 2 to Paper Dumpyard
(= (distance PLD1 PLCB1) 2); Paper Dumpyard to Paper City Bin 1
(= (distance PLCB1 PLCB2) 2); Paper City Bin 1 to Paper City Bin 2
(= (distance PLCB2 PLD1) 2); Paper City Bin 2 to Paper Dumpyard
(= (total-cost) 0)
```

Planner

Description:

Fast Downward is a PDDL automated planning system that supports classical planning.

Functionality:

Fast Downward operates by translating PDDL descriptions into a graph-search problem. In this process, nodes represent states visited by the planner. It incrementally builds this graph in a forward manner while being guided by a heuristic function. This guidance helps the planner explore only those nodes whose associated states are reachable from the initial state, thus efficiently moving towards achieving the specified goals.

Operating System Compatibility: Fast Downward is compatible with various operating systems, including Linux, macOS, and Windows.

Planner (Continue)

Command:

The general command for running Fast Downward typically follows this format:

./fast-downward.py <domain_file> <problem_file> [options]

Here,

./fast-downward.py: Command to execute the Fast Downward planner.

<domain_file>: The PDDL file describing the domain.

cproblem_file>: The PDDL file describing the problem instance.

[options]: Optional arguments that can be provided to customize the planning process, such as search algorithm selection, heuristic options, etc.

Fast Downward official documentation: https://www.fast-downward.org/

Search Algorithm:

Introduction to A*:

- •A* is a widely used pathfinding and graph traversal algorithm.
- •It is known for its efficiency in finding the shortest path from a start node to a goal node.
- •A* combines the benefits of Dijkstra's algorithm and Greedy Best-First-Search by using a heuristic to prioritize nodes.

Node Expansion:

Continuously expand the node with the lowest estimated cost

f = g + h

Where,

- •g: Cost from the start node to the current node.
- •h: Heuristic estimate of the cost from the current node to the goal.

Optimal:

- •Optimal if h admissible and consistent.
- •If h admissible and reopening is used.

Fast Downward Search Algorithms: https://www.fast-downward.org/Doc/SearchAlgorithm

Note: Generally, in Fast Downward, A* uses reopening. There is no method to set reopening to false in A* (Fast Downward), unlike other search algorithms in fast Downward.

Heuristics:

Optimal Heuristic

- Hmax: Admissible = Yes, Consistent = Yes.
- Blind: Admissible = Yes, Consistent = Yes.

Non Optimal Heuristic

- Hff: Admissible = No, Consistent = No.
- Hadd: Admissible = No, Consistent = No.

Fast Downward Heuristic: https://www.fast-downward.org/Doc/Evaluator

Evalution:

- Plan Length step (s)
- Execution Time (seconds)
- Generated States (s)
- Plan cost (If plan found)

Blind (A*)

Problems	Plan Length step(s)	Execution Time (s)	Generated States state(s)	Cost
Problem 1	10	0.0144413	131	10
Problem 2	13	0.00993063	221	13
Problem 3	37	0.0444688	63665	37
Problem 4	68	85.7429	357852046	68
Problem 5	71	1771.61	737084364	71
Problem 6	71	1724.42	737597113	71
Problem 7	N/A	N/A	N/A	N/A
Average	45	596.9736235	305432923	45

Note: In problem 7 (N/A) means it is not executable, because of too much complexity planer stop automatically after some hours.

Hmax (A*)

Problems	Plan Length step(s)	Execution Time (s)	Generated States state(s)	Cost
Problem 1	10	0.0112963	101	10
Problem 2	13	0.0112921	191	13
Problem 3	37	0.132519	63287	37
Problem 4	68	371.912	357826248	68
Problem 5	71	1983.53	1464807292	71
Problem 6	71	2029.85	1463257888	71
Problem 7	N/A	N/A	N/A	N/A
Average	45	730.9078512	547659167.8	45

Note: In problem 7 (N/A) means it is not executable, because of too much complexity planer stop automatically after some hours.

Hadd (A*)

Problems	Plan Length step(s)	Execution Time (s)	Generated States state(s)	Cost
Problem 1	10	0.0135257	35	10
Problem 2	13	0.015098	45	13
Problem 3	37	0.0190317	1915	37
Problem 4	73	0.323451	51102	73
Problem 5	73	1.51126	736376	73
Problem 6	73	1.5884	745842	82
Problem 7	109	113.18	84381407	118
Average	55.42857143	16.6643952	12273817.4	58

Note: hadd executed problem 7.

Hff (A*)

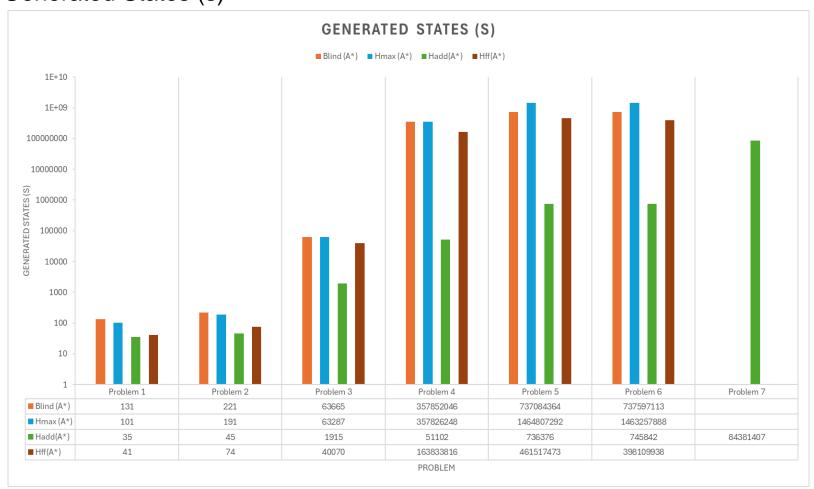
Problems	Plan Length step(s)	Execution Time (s)	Generated States state(s)	Cost
Problem 1	10	0.01217	41	10
Problem 2	13	0.0117666	74	13
Problem 3	37	0.114012	40070	37
Problem 4	68	343.166	163833816	68
Problem 5	71	1274.42	461517473	71
Problem 6	71	1036	398109938	71
Problem 7	N/A	N/A	N/A	N/A
Average	45	442.2873248	170583568.7	45

Note: In problem 7 (N/A) means it is not executable, because of too much complexity planer stop automatically after some hours.

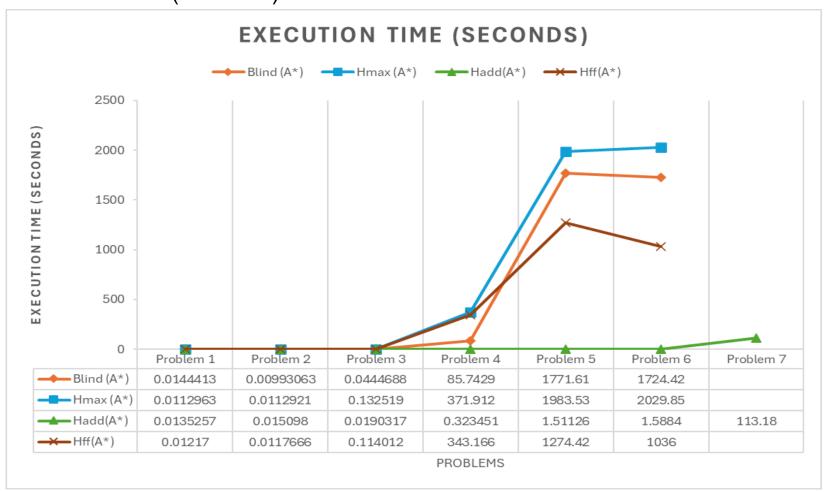
Plan Length Step(s)



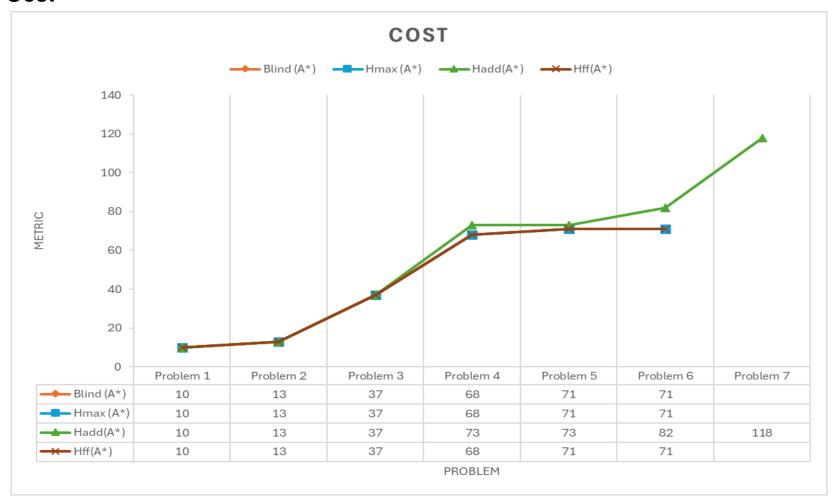
Generated States (s)



Execution Time (Seconds)



Cost



Person = 2, Rooms = 2, Garbage = 2 (Organic, Plastic, Paper), Dustbin = 1 (Organic, Plastic, Paper), City Bins = 1 (Organic, Plastic, Paper), Trucks = 1 (Organic, Plastic, Paper), Truck Limit = 1 (City Bin 1), Dump yard = 1 (Organic, Plastic, Paper), Matric = Total cost only

Blind Hmax Hadd Hff nove_to_room person_ia o_bin_ia room_ia garbage_o_ia p_cap_ia iia ria) move to bin person 1a o bin 1a garbage o 1a p cap 1a ria o1a) fill bin partially person 1a o bin 1a garbage o 1a p cap 1a o1a) move to room person 1a o bin 1a room 1a garbage o 2a p cap 1a o1a ria) (ome: to: from person_ia o (onlia roma_parson_ia p.cep_ia iae_ria) (fill (bii.partial)) person_ia o (bii.la perbogo_ia p.cep_ia riad ola) (fill (bii.partial)) person_ia o (bii.ae parbogo_ia p.cep_ia bii.ae (ome: to: bii person_ia o (bii.ae parbogo_iae) p.cep_iae pla ola ria) (ome: to: bii person_ia o (bii.ae parbogo_iae p.cep_iaria ola) (fill (bii.completa)) person_ia o (bii.ae parbogo_iae p.cep_iaria ola) we to bin person 1a o bin 1a garbage o 1a p.cap 1a r1a ota) 11 bin partially person 1a o bin 1a garbage o 1a p.cap 1a ota) we to room person 1a pa_bin 1a room 1a garbage pa_1a p_cap_1a ota r1a) move to bin person 1b pa bin 1b garbage pa 1b p cap 1b r1b pa1b) move to bin person la o_bin la garbage o 2a p_cap_la rla ola) (fill_bin_completely person la o_bin_la garbage_o_2a p_cap_la ola) move person 1b p cap 1b path plib) get new bag person la o bin la garbage o la membag o la p cap la ola bla) move to bin to change bag person la o bin la membag o la p cap la bla ola) (move_to_room person_la pa_bin_la room_la garbage_pa_la p_cap_la ola rla) (move_to_bin person_la pa_bin_la garbage_pa_la p_cap_la rla pala) (move_to_bin person_ta_o_bin_ta_garbage_o_ta_p_cap_ta_rta_ota to bin person ia pl bin ia garbage pl ia p cap ia ria plia) bin partially person ia pl bin ia garbage pl ia p cap ia pl: ill_bin_partially person_ta o_bin_ta garbage_o_ta p_cap_ta ota detach old bag person 1a o bin 1a newbag o 1a oldbag o 1a p cap 1a o1a) move person to citybin person 1a n2 n1 o citybin 1 o bin 1a oldbag o 1a p cap 1a o1a ocb1) (move to room person 1b pl bin 1b room 1b garbage pl 1b p cap 1b int rib) (move to bin person 1b pl bin 1b parbage pl 1b p cap 1b rib plib) (fill bin partially person 1a p bin 1a garbage pl 1a p cap 1a p cap 1a pata) (fill bin partially person 1b pl bin 1b garbage pl 1a p cap 1b plib) (move to coom person la o bin la room la garbage o 2a p cap la ola ria) (move to bin person la o bin la garbage o 2a p cap la ria ola) we to room person ib o bin ib room ib garbage o ib p cap ib iib rib) move_to_bin person_la pa_bin_la garbage_pa_la p_cap_la rla pala) fill_bin_partially person_la pa_bin_la garbage_pa_ta p_cap_la pala ll bin partially person 1b o bin 1b garbage o 1b p cap 1b o1b)
we_to_room person_1b pa_bin_1b room_1b garbage_pa_1b p_cap_1b o1b r1b move person la p cap la ola plia) (move to room person la pa bin la room la garbage pa 2a p cap la pala rla) (move to bin person la pa bin la garbage pa 2a p cap la rla pala) move to room person ia pa bin ia room ia garbage na 2a p cap ia paia ria) move to bin person ia pa bin ia garbage na 2a p cap ia ria paia) we to bin person 1b pa bin 1b garbage oa 1b p cap 1b r1b pa1b) 1l bin partially person 1b pa bin 1b garbage pa 1b p cap 1b pa1b) (move to room person to pl bin to room to garbage pl to p cap to plto rto) (move to room person 1b pl bin 1b room 1b garbage pl 2b p cap 1b pl1b r1b) (move to bin person 1b pl bin 1b garbage pl 2b p cap 1b r1b pl1b) fill_bin_completely person 1a pa_bin_1a_garbage_pa_2a_p_cap_1a_pa1a) [get_new_bag_person_ta_pa_bin_1a_garbage_pa_1a_newbag_pa_1a_p_cap_1a_pa1a_b1a) ve to room person 1b o bin 1b room 1b garbage o 2b p cap 1b pa1b r1b) ve to bin person 1b o bin 1b garbage o 2b p cap 1b r1b o1b) (once the product of move to bin to change bag person la pa bin la nembag pa la p cap la bia pala) detach old bag person la pa bin la nembag pa la oldbag pa la p_cap_la pala) 11 bin completely person 1b o bin 1b garbage o 2b p cap 1b o1b) it new bag person 1b o bin 1b garbage o 1b newbag o 1b p cap 1b o1b b1b) we to bin to change bag person 1b o bin 1b newbag o 1b p cap 1b b1b o1b) move person to citybin person 1a n2 n1 pa citybin 1 pa bin 1a oldbag pa 1a p cap 1a pa1a pacbi move to room person 1a pl bin 1a room 1a garbage pl 1a p cap 1a pacbi r1a) (move to room person la pa hin la room la gartage pa la p cap la plla rla) (move to hin person la pa hin la gartage na la p cap la rla pola) etach old bag person 1b o bin 1b newbag o 1b oldbag o 1b p cap 1b o1b) move to bin person ta pl bin ta garbage pl ta p cap ta ria plia) fill_bin_partially person ta pl bin ta garbage pl ta p cap ta plia) move_to_room person ta pl bin_ta room ta garbage pl 2a p cap ta plia ria) (move_to_bin person_la pl_bin_la garbage_pl_2a p_cap_la rla plla) (fill_bin_completely person_lb pl_bin_lb garbage_pl_2b p_cap_lb pllb) ove person 1b p cap 1b path o1b) re-gerson, occupion promition in no occupion, o bit no occupion, o colong o in gree, ect prome person the palled in home, the girledge, palledge, palledge, palledge, he to bit person, the palledge, palledge, palledge, palledge, palledge, palledge, I bit completely person the palledge palledge, palledge, palledge, the posts bit palledge, come bag person, the palledge beginning membag palledge, the present bits bits. fill bin partially person to po bin to garbage on to p cap to pata) (nove to room person to obin its paragae, o to place to be obligated to be obl ove to bin person ta pa bin ta garbage pa 2a p cap ta rta pata) get new bag person 1a pl bin 1a garbage pl 1a newbag pl 1a p cap 1a pl1a b1a) move_to_bin_to_change_bag person_1a pl_bin_1a newbag pl 1a p_cap_1a b1a pl1a) we to bin to change bag person 1b pa bin 1b newbag pa 1b p cap 1b b1b paib) tach old bag person 1b pa bin 1b newbag pa 1b oldbag pa 1b p cap 1b paib) get new hag person ta o hin ta garhage o ta newbag o ta p cap ta pata htu) nove to hin to change hag person ta o hin ta newbag o ta p cap ta bta ota) (see, to, row perior, ib. o, ib., ib row, ib garbage_2, ib. p. (ap. 1) oit rib)
(see, to, ib) present, ib. o, ib., ib printege_2 ob. p. (ap. 1) rib oit)
(fill bir, completely perior, ib. p. ib., ib printege_2, ib. p. (ap. 1) oit oit)
(fill bir, completely perior, ib. p. ib., ib. printege_2, ib. p. (ap. 1) oil rib)
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(see, to, row perior, ib. p. ib., ib. printege_2, ib. p. (ap. 1) p. ib.) partial
(fill bir) perior, ib. p. ib., ib. printege_2, ib. p. (ap. 1) p. ib.) partial
(fill bir) perior, ib. p. ib., ib. printege_2, ib. p. (ap. 1) p. ib.)
(see, to, row perior, ib. p. ib., ib. printege_2, ib. p. (ap. 1) p. ib.)
(fill bir) perior, ib. p. ib., ib. printege_2, ib. p. (ap. 1) p. ib.) detach old hag person to o him to meshag o to oldbag o to p cap to oto) move to room person th o him th room th garbage o to p cap to oto rtb) e to room person 1b pl bin 1b room 1b garbage pl 1b p cap 1b pacb1 r1b we to room person to pl. bin to room to gardage_pl. bb p.cap. to peter ris we to bin person bb pl bin ib parhage_pl. th p.cap. th ris plib) ll_bin partially person to pl. bin to garbage_pl. th p.cap. to plib) we to room person to pl. bin to room to garbage_pl. 2a p.cap. to plib ris) move person la p cap la plobl ila) move_to_room person lb o_bin_tb room_tb garbage_o_tb p_cap_tb ilb rtb) ove to hin person this him th garbage of this cap to rib oth).
It his partially person this him this garbage of this cap to oth). (see to row person to 6 bit in row in gardage a la p (eq. bit 10 rth)

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(fill bits partially person it is thin in gardage a, la p (eq. bit obt)

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(get now lass person it to bits it gardage a, la p (eq. bit bit bits)

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(set now ladder a)

(set now ladder a) re to room person thip! him the room the garbage plitts proop thouth rib! re to him person thip! him the garbage plitts proop the rib plits) e to bin person, ta pl. bin ia garbage pl. za p. cp. ta r ta plia) l bin completely person ta pl. bin ia garbage pl. za p. cp. ta r ta plia) l bin completely person ta pl. bin ia garbage pl. za p. cp. ta plia) new kap person ta pl. bin ia garbage pl. ta pesage pl. ta p. cp. ta plia bia) e to bin to change bag person ta pl. bin ia newbag pl. sa p. cpp. ta bia plia) none to bin person the patient from the generating personal part (see that the connect to bin person the patient by generating patient (see that (see that the connected) person the patient partners partners to a bin it aprended to a read that the patient patient patient patient patient patient patient to bin to change ladge person it to bin it a mediag of its graps is bits only move to bin to change ladge person its obtain a mediag of its graps is bits only old bag person la pl bin la newbag pl la oldbag pl la p cap la plla) erson to citybin person la n2 n1 pl citybin 1 pl bin la oldbag pl la p cap la plla plct I hin completely person thio hin th garbage o 2b p cap th oth) (642A), Oli leg person di solita la messa più messa più solita più solita più solita (642A), Oli leg person di solita la messa più solita più solita più solita (143A) della p to room person la o bin la room la garbage o 2a p cap la plcbl rla) to bin person la o bin la garbage o 2a p cap la rla ola) (move to hin person th pa hin th garbage pa 7h p cap th rtb path) load city garbage truck o n1 n0 n2 n0 o bin 1a o citybin 1 od1 ocb1) move to room person 1b pa bin 1b room 1b garbage pa 1b p cap 1b ocb1 r1b) l bin completely person la o bin la garbage o Za p cap la ola) new bag person la o bin la garbage o la newbag o la p cap la ola bla) (move to room person th pl hin th room th garbage pl 2b p cap th path rth) (move to hin person th pl hin th garbage pl 2b p cap th rth plth) move to bin person 1b pa bin 1b garbage pa 1b p cap 1b r1b pa1b) fill_bin_partially person_1b pa_bin_1b garbage_pa_1b p_cap_1b pa1b) bin_to_change_bag_person_la_o_bin_la_newbag_o_la_p_cap_la_bla_ola (move_person_to_citybin_person_ib_ni_n0_o_citybin_i o_bin_ib_oldbag_o_ib_p_cap_ib_olb_ocbi) (get_new_bag_person_ia_pa_bin_ia_garbage_pa_ia_newbag_pa_ia_p_cap_ia_ocbi_bia) (fill hin completely person thipl him the garbage ploth pix population) (get new hag person thips him the garbage parth newbog parth pix pix plub bits). tach old bag person la o bin la newbag o la oldbag o la p cap la ola) ve person to citybin person la n1 n0 o citybin 1 o bin 1a oldbag o la p cap 1a ola ocb1) move to room person 1b pa bin 1b room 1b garbage pa 2b p cap 1b pa1b r1b) move to bin person 1b pa bin 1b garbage pa 2b p cap 1b r1b pa1b) (move to bin to change bag person ia pa bin ia newbag pa ia p cap ia bia paia) (get_new_bag person ib pl_bin_ib garbage_pl_ib newbag_pl_ib p_cap_ib ocbi bib) move to him to change hag person th pa him th neabag pa 1b p cap th b1b path) detach old hag person 1b pa him 1b neabag pa 1b olubag pa 1b p cap 1b path) ad city parhage truck o mi m8 m2 m8 o him ia o citybin i odi ochi (MTL) Link (which be years) to privide year or year in morning (MTL) Link (which be years) to privide years (years) to year the public (get me law person the years) to privide years (years) to year years (years) ye e to room person la pa bin la room la garbage pa 2a p cap la ocbl rla) move to bin to change bag person 1b pl bin 1b newbag pl 1b p cap 1b b1b pl1b detach old bag person 1a pa bin 1a newbag pa 1a oldbag pa 1a p cap 1a pa1a) (get now hose persons to pl bin to getting pl to modes, pl to p cop to odd) that)

(get now hose persons to pl bin to getting pl to modes, pl to p cop to odd) that)

(getting to bin to change has persons to pl bin to modes, pl to p cop to obto plto)

(debath old bay persons to pl bin to modes, pl to olden pl to p cop to plto)

(move person to citybin person th or at pa citybin t po bin th olden; po the p cop th path pacht ove to bin person la pa bin la garbage pa 2a p cap la rla pala) ill_bin_completely person la pa_bin la garbage pa 2a p_cap_la pala) (macardining person, is plant in medago), is closed point p. cos, is shall (macardining person, is plant in medago), is closed p. cos, is shall p. cos, (mac person, to closely) person, is not a p. closely, is p. cis, is old ago, is p. cos, is plant pactal (mac person, to closely) person, is not a p. closely, is p. cis, is closed p. is p. cos, is plant pacta (per, med. kg, person, is plant is person, is not a p. closely), is p. cos, is pacta tau) (mem. Collett, college, key person, is p. lib, in a medago], is p. cos, is the plant unload city garbage truck o ni në dumpyard o ochi odi) get new bag person la pa bin la garbage pa la newbag pa la p cap la pala bla) load_city_garbage_truck_pa_n1_n0 n2_n0 pa_bin_1a_pa_citybin_1 pad1 pacb1) move_to_room_person_1b_pl_bin_1b_room_1b_garbage_pl_1b_p_cap_1b_pacb1_r1b) nove to bin to change bag person la pa bin la newbag pa la p cap la bla pala) detach old bag person la pa bin la newbag pa la oldbag pa la p cap la pala) (get new hag person th o bin th garbage o th newbag o 1b p cap 1b pacbt bib) (move to bin to change hag person th o bin th newbag o 1b p cap 1b bib olb) move to bin person 1b pl bin 1b garbage pl 1b p cap 1b r1b pl1b) (fill bin partially person 1b pl bin 1b garbage pl 1b p cap 1b pl1b) (ext. no. 1.54; person. 10. no. 1.05; perbags. p. 3. th messags. p. 1. p. (no. 1. p. 1. c.) at 1.01; 1.00; (ext. 1. 0. 1. 0. 0. 1. 0 detach old bag person 1h o bin 1h newhag o 1h oldbag o 1h p cap 1h o1h) nove person to citybin person 1h n1 n0 o citybin 1 o bin 1h oldbag o 1h p cap 1h o1h och1) oad city garbage truck pa ni n0 n2 n0 pa bin la pa citybin i padi pacbi move to room person 1b pl bin 1b room 1b garbage pl 2b p cap 1b pl1b r1b) move to bin person 1b pl bin 1b garbage pl 2b p cap 1b r1b pl1b) oad city garbage truck o mi n0 m2 m0 o bin la o citybin i odi ocbi) unload city garbage truck pa n1 n0 dumpyard_pa pacb1 pad1) move to room person_1b pl_bin_1b room_1b garbage_pl_2b p_cap_1b pl1b r1b) (met disan periodi pari gain periodigary, pari periodigary, pari periodigary), (pari periodigary), periodigary), periodigary, pari periodigary), pari periodigary, pari periodigary, pari periodigary), par unload city garbage truck o mi m@ dumpyard o ocbi odi) get new bug person 1b pl bin 1b garbage pl 1b newbeg pl 1b p cap 1b och1 b1b) nove to bin to change bag person 1b pl bin 1b newbeg pl 1b p cap 1b b1b pl1b) detach old bag person 1b pl bin 1b newbag pl 1b oldbag pl 1b p cap 1b pl1b) nowe to this person, the plan is not one grouper_ice you to print the promet to the person the plan is the partners plan plan plan the plan fill bits completely person the plan is partners plan plan plan plan to person the plan is partners plan person plan person the plan is partners plan person plan to change bag person the plan bits to mediag plan person the bits to mediag plan person to the plan to change bag person the plan bits to mediag plan person to bits to change bag person the plan bits to mediag plan person to be the plan to change bag person the plan bits to mediag plan person to the plan bits to mediag plan person to be the plan to change bag person the plan bits to mediag plan be person to be the plan to be provided to the person to be provided to the person to be provided to the plan to be provided to the plan to be provided to the plan to be provided to the person to be provided to the person to be provided to the plan to be provided to the person to be provided to the person to be provided to the plan to be provided to the person to be person to be provided to the person to be person to be person to the person to be person to be provided to the person to be load_city_garbage_truck_o ni n0 n2 n0 o bin_ia o citybin_i odi ocbi) load_city_garbage_truck_pa_ni n0 n2 n0 pa_bin_ia pa_citybin_i padi pacbi) load city garbage truck pl m1 m0 m2 m0 pl bin 1a pl citybin 1 pld1 plcb1) detach old bag person 1b pl bin 1b newbag pl 1b oldbag pl 1b p cap 1b pl1b) move person to citybin person 1b n1 n0 pl citybin 1 pl bin 1b oldbag pl 1b p cap 1b pl1b plcb1 load city garbage truck pl n1 n0 n2 n0 pl bin 1a pl citybin 1 pld1 plcb1) ove to bin to change bag person la pa bin la newbag pa la p cap la bla pala) etach old bag person la pa bin la newbag pa la oldbag pa la p cap la pala) move person la p cap la plob1 ila) unload city garbage truck pa ni në dumpyard pa pacbi padi) unload city garbage truck pl ni në dumpyard pl plcbi pldi) (unload_city_garbage truck_pa ni n0 dumpyard_pa pacbi padi) (unload_city_garbage truck_pl ni n0 dumpyard_pl plcbi pldi) move person to citybin person 1a n1 n0 pa citybin 1 pa bin 1a oldbag pa 1a p cap 1a pa1a pacb1 move person to citybin person 1b n1 n0 pl citybin 1 pl bin 1b oldbag pl 1b p cap 1b pl1b plcb1 move person 1b p cap 1b plcb1 i1b) load_city_garbage_truck_pl n1 n0 dumpyard_pl plcb1 pld1) nload_city_garbage truck_o n1 n0 dumpyard_o ocb1 od1) load city garbage truck pl n1 n0 n2 n0 pl bin 1a pl citybin 1 pld1 plcb1 (move person 1b p cap 1b plcb1 i1b (unload city garbage truck pl ni ne dumpyard pl plcbi pldi) ; cost = 73 (unit cost)

Person = 2, Rooms = 2, Garbage = 2 (Organic, Plastic, Paper), Dustbin = 1 (Organic, Plastic, Paper), City Bins = 2 (Organic, Plastic, Paper), Trucks = 1 (Organic, Plastic, Paper), Truck Limit = 2 (City Bin 1, City Bin 2), Dump yard = 1 (Organic, Plastic, Paper), Matric = Total cost only

Blind Hmax Hadd Hff move person_1b p_cap_1b i1b o1b) ove_to_bin_person_1b o_bin_1b garbage_o_1b p_cap_1b r1b o1b) fill_bin_partially person_1b o_bin_1b garbage_o_1b p_cap_1b o1b) ove to bin person 1b o bin 1b garbage o 1b p cap 1b r1b o1b ove_to_bin_person_1b o_bin_1b garbage_o_1b p_cap_1b r1b o1b) nove_to_room person_la pa_bin_la room_la garbage_pa_la p_cap_la ila rla) ll_bin_partially person_tb o_bin_tb garbage_o_tb p_cap_tb o1b] bin_partially person_tb o_bin_tb garbage_o_tb p_cap_tb otb move to bin person la pa bin la garbage pa la p cap la rla pala) fill_bin_partially person la pa_bin_la garbage_sa_la p_cap_la pala) move_to_room person la pl_bin_la room la garbage_pl_la p_cap_la pala rla) move to room person ib o bin ib room ib garbage o 2b p cap ib oib rib) move to bin person ib o bin ib garbage o 2b p cap ib rib oib) move to room person 1b o bin 1b room 1b garbage o 2b p cap 1b o1b r1b) move to bin person 1b o bin 1b garbage o 2b p cap 1b r1b o1b) nove to room person 1b pa bin 1b room 1b garbage pa 1b p_cap 1b o1b r1b nove_to_bin person_1b pa_bin_1b garbage_pa_1b p_cap_1b r1b pa1b fill bin completely person 1b o bin 1b garbage o 2b p cap 1b o1b)
get new bag person 1b o bin 1b garbage o 1b newbag o 1b p cap 1b o1b b1b) fill bin completely person 1b o bin 1b garbage o 2b p cap 1b o1b)

get new bag person 1b o bin 1b garbage o 1b newbag o 1b p cap 1b o1b b1b) ill bin partially person 1b pa bin 1b garbage pa 1b p cap 1b pa1b nove to room person 1a o bin 1a room 1a garbage o 1a p cap 1a iia ria move to bin person la pl bin la garbage pl la p cap la rla plla) fill bin partially person la pl bin la garbage ol la p cap la plla move to bin to change bag person 1b o bin 1b newbag o 1b p cap 1b bib oib detach old bag person 1b o bin 1b newbag o 1b oldbag o 1b p cap 1b oib) move to bin to change bag person 1b o bin 1b newbag o 1b p cap 1b b1b o1b) detach old bag person 1b o bin 1b newbag o 1b oldbag o 1b p cap 1b o1b) move person 1b p cap 1b o1b pa1b) move to room person 1a o bin 1a room 1a garbage o 1a p cap 1a pl1a r1a) ll bin partially person ia o bin ia garbage o ia p cap ia oia never to bin person to both in recognition of the property of the party of the part move person to citybin person 1b m1 m8 o citybin 2 o bin 1b oldbag o 1b p cap 1b o1b ocb2) load city garbage truck o n2 m1 m1 m8 o bin 1b o citybin 2 odi ocb2) to_room person_la pa_bin_la room_la garbage_pa_la p_cap_la ola ri nove to bin person la o bin la garbage o la p cap la rla ola) fill_bin partially person la o bin la garbage o la p cap la ola) ove_to_bin person_1a pa_bin_1a garbage_pa_1a p_cap_1a r1a pata ill_bin_partially person_1a pa_bin_1a garbage_pa_1a p_cap_1a pata e_to_room person_tb pa_bin_tb room_tb garbage_pa_tb p_cap_tb ocb2 rtb) ove to room person la o bin la room la garbage o 2a p cap la ola rla) ove_to_bin_person_tb pa_bin_tb garbage_pa_tb p_cap_tb r1b pa1b) ill_bin_partially_person_tb pa_bin_tb garbage_pa_tb p_cap_tb pa1b) ill_bin_partially_person_tb_pa_bin_tb_garbage_pa_tb_p_cap_tb_patb) ove_to_room_person_tb_pa_bin_tb_room_tb_garbage_pa_2b_p_cap_tb_patb_rib) nove to room person ib o bin ib room ib garbage o 2b p_cap ib paib rib nove to bin person ib o bin ib garbage o 2b p_cap ib rib oib move to room person ib pa bin ib room ib garbage pa 2b p cap ib paib rib) move to bin person ib pa bin ib garbage pa 2b p cap ib rib paib) ove_to_bin_person_1b_pa_bin_1b garbage_pa_2b_p_cap_1b r1b pa1b) ill_bin_completely_person_1b_pa_bin_1b_garbage_pa_2b_p_cap_1b_pa1b ill bin completely person 1b o bin 1b garbage o 2b p cap 1b o1b et new bag person 1b o bin 1b garbage o 1b newbag o 1b p cap 1b o1b b1b move to room person la pl bin la room la garbage pl 2a p cap la ola rla) move to bin person la pl bin la garbage pl 2a p cap la rla plla) fill bin_completely person th pa bin th garbage pa zh p_cap th path)
get new bag person_th pa bin it garbage pa it newbag pa it p_cap it path bit)
move to bin to change bag person it pa bin it newbag pa it p_cap it bit path) get new bag person 1b pa bin 1b garbage na 1b rewbag na 1b p cap 1b pa1b b1b) nove_to_bin_to_change_bag person_1b pa_bin_tb rewbag na 1b p_cap 1b b1b pa1b) nove_to_room person_1a pl_bin_1a room_1a garbage_pl_1a p_cap 1a iia ria) nove to bin to change bag person 10 o bin 10 newlog o 10 p cap 10 bib oib Metach old bag person 10 o bin 10 newlog o 10 oldlog o 10 p cap 10 oib nove person to citybin person 10 ni m0 o citybin 2 o bin 10 oldlog o 10 p cap 10 oib ocb2 fill bin completely person 1a pl bin 1a garbage pl 2a p cap 1a pl1a) nove to room person 1a pa_bin 1a room 1a garbage pa 2a p cap 1a pl1a r1a) nome to it more person, las pa site, la room, las géroles par, as p.c. op. la puta rias domes to las persons las pa lin la gerbego par da p.c. pa la ria pata) fill. Bin completely person, la pa bin, las gerbego par las p.c. pa la pata) oper to lis to, change bag person, la o bin la mediage, las p.c. op. la pata bita) nome to bita to, change bag person, la o bin la mediage, las p.c. país bita ota) detector die Bag person la a obita las mediage, da a domaço, las p.c. pa la bita ota) (detach old bag person 1b pa bin 1b newbag pa 1b oldbag pa 1b p cap 1b paib) (move person to citybin person 1b n1 n0 pa citybin 2 pa bin 1b oldbag pa 1b p cap 1b paib pacb2) move to bin person la pl_bin la garbage pl_la p_cap_la rla plla) fill_bin_partially person la pl_bin_la garbage_pl_la p_cap_la plla load city garbage truck o n2 n1 n1 n0 o bin 1b o citybin 2 odi ocb2 nove to room person 1b pl bin 1b room 1b garbage pl 1b p cap 1b ocb2 r1b load city garbage truck pa n2 n1 n1 n0 pa bin 1b pa citybin 2 pad1 pacb2) move to room person 1b pl bin 1b room 1b garbage pl 1b p cap 1b pacb2 r1b move to room person 1a pl bin 1a room 1a garbage pl 2a p cap 1a pl1a r1a) move to bin person 1a pl bin 1a garbage pl 2a p cap 1a r1a pl1a) move to bin person ib pl bin ib garbage pl ib p_cap_ib rib plib fill_bin_partially person_ib pl_bin_ib garbage_pl_ib p_cap_ib plib move_to_room person_ia o_bin_ia room_ia garbage_o_Za p_cap_ia paia ria move to bin person 1b pl_bin 1b garbage_pl_1b p_cap_1b r1b pl1b) fill_bin_partially person_1b pl_bin_1b garbage_pl_1b p_cap_1b pl1b) move_to_room person_1b pl_bin_1b room_1b garbage_pl_2b p_cap_1b pl1b r1b) move person to citybin person 1a n1 n0 o citybin 1 o bin 1a oldbag o 1a p cap 1a o1a ocb1) load city garbage truck o n2 n1 n1 n0 o bin 1a o citybin 1 od1 ocb1) get new bag person ia pl bin ia garbage pl ia rewbag pl ia p cap ia plia bia) nove to_bin_to_change_bag person_ia pl_bin_ia newbag_pl_ia p_cap_ia bia plia) get new hag person la pa bin la garbage pa la newbag pa la p cap la ocbi bla) nove to bin to change bag person la pa bin la newbag pa la p cap la bla pala) detach old bag person la pa bin la newbag pa la oldbag pa la p cap la pala) move to bin person 1b pl bin 1b garbage pl 2b p cap 1b r1b pl1b) fill_bin_completely person_1b pl bin_1b garbage_pl 2b p_cap 1b pl1b detach old bag person 1a pl bin 1a newbag pl 1a oldbag pl 1a p cap 1a pl1a) move person to citybin person 1a n1 n0 pl citybin 1 pl bin 1a oldbag pl 1a p cap 1a pl1a plcbi et new bag person la o bin la garbage o la newbag o la p_cap_la ola bia nove to bin to change bag person la o bin la newbag o la p_cap_la bia ola (get new bag person ib pl bin ib garbage pl ib newbag pl ib p cap ib plib bib) (move to bin to change bag person ib pl bin ib newbag pl ib p cap ib bib plib) (move person to citybin person ia ni no pa citybin i pa bin la olidog pa la p.cop la pata pachi (get nov dag person la pl bin la garbage pl la modog pl la p.cop la pachi bia) (over to his to change bag person la pl bin la modog pl la p.cop la bap lila) (detach old bag person la pl bin la modog pl la olidog pl la p.cop la plia) detach old bag person 1a o bin 1a newbag o 1a oldbag o 1a p cap 1a o1a move person to citybin person 1a n1 n0 o citybin 1 o bin 1a oldbag o 1a p cap 1a o1a ocb1 ove_to_bin person_1a o_bin_1a garbage_o_1a p_cap_1a r1a o1a) (detach old bag person 1b pl bin 1b newbag pl 1b oldbag pl 1b p cap 1b plib) (move person to citybin person 1b n1 n0 pl citybin 2 pl bin 1b oldbag pl 1b p cap 1b plib plcb2) fill bin partially person ia o bin ia garbage o la p cap ia oia) move to room person ia o bin ia room ia garbage o la p cap ia oia ria) nove_to_room_person_ia pa_bin_ia room_ia garbage_pa_ia p_cap_ia ocbi ria nove_to_bin_person_ia pa_bin_ia garbage_pa_ia p_cap_ia ria paia nad_city_garbage_truck_pl n2 n1 n1 n0 pl_bin_1b pl_citybin_2 pld1 plcb2) move person to citybin person 1a m1 m0 pl citybin 1 pl bin 1a oidhag pl 1a p cap 1a plta plcb1 load city garbage truck pa m2 m1 m1 m0 pa bin 1a pa citybin 1 padi pacb1) fill bin completely person ia o bin ia garbage o 2a p cap la ota) get new bag person ia o bin ia garbage o ia neobag o ia p cap ia ota bia) move to bin io change bag person ia o bin ia neobag o ja o pa ia bia ota) detach old bag person ib pa bin ib neobag pa ib oldbag pa ib p cap ib paib) ill bin completely person_ia pa bin_ia garbage_pa_2a p_cap_ia paia nload_city_garbage_truck_o ni n0 dumpyard_o ocbi odi move person 1b p cap 1b plcb2 i1b) load_city_garbage_truck_pl m2 m1 m1 m0 pl_bim_la_pl_citybim_1 pld1 plcb1) move_person_la_p_cap_la_plcb1 i1a) move to room person la o bin la room la garbage o Za p cap la ola rla) move to bin person la o bin la garbage o Za p cap la rla ola) detach old bag person 1a o bin 1a newbag o 1a oldbag o 1a p cap 1a ota) Nove person to citybin person 1b n1 n0 pa citybin 2 pa bin 1b oldbag pa 1b p cap 1b pa1b pacbi etach old bag person 1a pa bin 1a newbag pa 1a olobag pa 1a p cap 1a pa1a ove person to citybin person 1a n1 n0 pa citybin 1 pa bin 1a olobag pa 1a p cap 1a pa1a pact move to bin person_1b o_bin_1b garbage_o_1b p_cap_1b r1b o1b) fill_bin_partially person_1b o_bin_1b garbage_o_1b p_cap_1b o1b nove_person_to_citybin_person_lant_nelo_citybin_lobin_to_bin_lobin_lobin_do_plap_cap_laolaocbl)
nove_to_room_person_lb_pl_bin_lb_garbage_pl_lb_p_cap_lb_pacb2 rlb)
nove_to_bin_person_lb_pl_bin_lb_garbage_pl_lb_p_cap_lb_rlb_pllb) fill bin completely person la o bin la garbage o la p cap la ola) get new bag person la o bin la garbage o la newbag o la p cap la ola bla) oad city garbage truck pa n2 n1 n1 n0 pa bin 1a pa citybin 1 pad1 pacb1 ove to room person 1a p1 bin 1a room 1a garbage p1 1a p cap 1a pacb1 r1a move to room person 1b pa bin 1b room 1b garbage pa 1b p cap 1b o1b r1b)
move to bin person 1b pa bin 1b garbage pa 1b p cap 1b r1b pa1b) we to bin person la pl bin la garbage pl. la p.cap la rla plia ill bin partially person la pl bin la garbage pl la p.cap la plia we to room person b pa bin ib room lb garbage pa 2b p.cap la plia rib move to bin to change bag person la o bin la newbag o la p cap la bla ola detach old bag person la o bin la newbag o la oldbag o la p cap la ola) fill_bin_partially person_tb pa_bin_tb garbage_pa_tb p_cap_tb patb) move to room person la pa bin la room la garbage pa la p cap la ocbl rla) move to bin person la pa bin la garbage pa la p cap la rla pala) move to room person ib pl bin ib room ib garbage pl ib p cap ib paib rib move to bin person 1b pl bin 1b garbage pl 1b p cap 1b r1b pl1b) fill_bin_partially person 1b pl bin 1b garbage pl 1b p_cap 1b pl1b) move_to_room person_1b o_bin_1b room 1b garbage o 2b p cap 1b pl1b r1b) oad city garbage truck o n1 n0 n1 n0 o bin 1a o citybin 1 ocb2 ocb1) nove to room person 1a pa bin 1a room 1a garbage pa 1a p cap 1a ocb1 r1a) fill bin partially person 1b pl bin 1b garbage pl 1b p cap 1b pl1b) nove to room person 1b pl bin 1b room 1b garbage pl 2b p cap 1b pl1b r1b) we to bin person 1b pa bin 1b garbage pa 2b p cap 1b r1b pa1b ill bin completely person 1b pa bin 1b garbage pa 2b p cap 1b pa1b nove to bin person la pa bin la garbage pa la p cap la ria pala)
iill bin partially person la pa bin la garbage pa la p cap la pala)
nove to room person la pa bin la room la garbage pa la p cap la pala ria) ove to bin person to pl bin to brown to gamage by a people plum injo ove to bin person th pl bin to gamage pl bp cap th rib plth) ill bin partially person ta pa bin ta gambage pa ta p cap ta pata) ove to room person ta pa bin ta room ta gambage pa Za p cap ta pata ria) new bag person 1b pa bin 1b garbage pa 1b mewbag pa 1b p cap 1b palb bib e to bin to change bag person 1b pa bin 1b newbag pa 1b p cap 1b bib palb move to bin person 1b o bin 1b garbage o 2b p cap 1b r1b o1b)
fill bin completely person 1b o bin 1b garbage o 2b p cap 1b o1b) etach old bag person 16 pa bin 16 newbag pa 16 oldbag pa 16 p cap 16 pa16 we person to citybin person 16 n1 n8 pa citybin 2 pa bin 16 oldbag pa 16 p cap 16 pa16 pac6 nove_to_room_person_ib_pa_bin_ib_room_ib_garbage_pa_2b_p_cap_ib_oib_rib) ove to bin person la pa bin la garbage pa 2a p cap la rla pala) ill_bin completely person la pa_bin la garbage pa 2a p_cap_la pala) ove_to_bin person_la pa_bin_la garbage_pa_2a p_cap_la rla pala) ill_bin_completely person_lb pl_bin_lb garbage_pl_zb p_cap_lb pl1b move to bin person 1b pa bin 1b garbage pa 2b p cap 1b r1b pa1b) fill bin completely person 10 pa bin 10 garbage pa 20 p cap 10 paib)
move to room person_10 pl_bin_10 room 10 garbage_pl_20 p_cap 10 paib rib)
move to bin person_10 pl_bin_10 garbage_pl_20 p_cap_10 rib plib) (fill bis, completely person, the plains, the persons, pl. the p.c., the fills) (fill bis, completely person is per bis, in parkings, pl. 2 p. c., the plains (pet, me, the person, the plains, the persons, pl. the redex, pl. the p.c., the bill bills) (pet, me, the person, the plains, the persons, pl. the thread, pl. the p.c., the bill plains (pet, me, the person, is a pulling a persons to plain the medage, pl. the p.c., the stable plains (pet, me, the person, is a pulling a person plain is medage, plains, p.c., the plain that (pet, me, the person person plains persons, plains, the medage, plains, plain et new bag person_la pa bin la garbage pa la newbag pa la p cap la pala bla) ove_to bin_to change bag person la pa_bin_la newbag pa_la p_cap_la bla pala) ove to room person 1b pl bin 1b room 1b garbage pl 2b p cap 1b pacb2 r1b ove to bin person 1b pl bin 1b garbage pl 2b p cap 1b r1b pl1b detach old bag person 1a pa bin 1a newbag pa 1a oldbag pa 1a p cap 1a pala) move person to citybin person 1a n1 n0 pa citybin 1 pa bin 1a oldbag pa 1a p cap 1a pala pacb1 ill bin completely person 1b pl bin 1b garbage pl 2b p cap 1b pl1b doad city garbage truck pa n1 n0 dumpyard pa pacb2 pad1 fill_bin_completely_person_1b_pl_bin_1b_garbage_pl_2b_p_cap_1b_pl1b)
get_new_bag_person_1b_o_bin_1b_garbage_o_1b_newbag_o_1b_p_cap_1b_pl1b_b1b] nices (city, garnege truck par in we compayed papeous peau.

yet me bug person in big list in garnege pl. in mesbag pl. in p. (cap. in plit bith

now to bit no change bag person in pl. bir in in mesbag pl. in p. (cap. in bith plit

betach old bag person in bil bit in beneskag pl. in oldewig pl. in by cap. in bil

now person bo citybian person in ni m pl. citybin 2 pl. bin in boldbag pl. in p. (cap. in plits pl. che oad city garbage truck pa n1 n0 n1 n0 pa bin 1a pa citybin 1 pacb2 pacb1) nove to room person 1a pl bin 1a room 1a garbage pl 1a p cap 1a pacb1 r1a) move to bin to change bag person 1b o bin 1b newbag o 1b p cap 1b b1b o1b) detach old bag person 1b o bin 1b newbag o 1b oldbag o 1b p cap 1b o1b) ve to bin person la pl bin la garbage pl 1a p cap 1a rla pl1a) 11 bin partially person la pl bin 1a garbage pl 1a p cap 1a pl1a) we to room person la pl bin 1a room 1a garbage pl 2a p cap 1a pl1a rla) move person to citybin person 1b n1 n0 o citybin 2 o bin 1b oldbag o 1b p_cap_1b o1b ocb2) load_city_garbage truck o n1 n0 n1 n0 o bin 1b o citybin 2 ocb1 ocb2) load city garbage truck o n2 n1 n1 n0 o bin 1b o citybin 2 od1 och2) detach old bag person 1a pa bin 1a newbag pa 1a oldbag pa 1a p cap 1a pala) oad city garbage truck pl n2 n1 n1 n0 pl bin 1b pl citybin 2 pld1 plcb2 nload_city_garbage_truck_o n1 m0 dumpyard_o oc52 od1) move to bin person 1a pl bin 1a garbage pl 2a p cap 1a rla pl1a) fill bin completely person 1a pl bin 1a garbage pl 2a p cap 1a pl1a; load city garbage truck pl n2 n1 n1 n0 pl bin 1a pl citybin 1 pld1 plcb1) move person to citybin person 1b n1 n0 pl citybin 2 pl bin 1b oldbag pl 1b p cap 1b plib plcb2 move person 1b p cap 1b plcb2 i1b move to room person Ia pl bin 1a room 1a garbage pl 2a p cap 1a plla ria get new bag person 1b pa bin 1b garbage pa 1b newbag pa 1b p cap 1b ocb2 b1b) move to bin to change bag person 1b pa bin 1b newbag pa 1b p cap 1b b1b pa1b) riai uni consecce person la più mi a generge, ca pi cap a pus) get nee bag person la pi bin la partega pi la neobag pi la p cap la bla bla) more to bin to change bag person la pi bin la neobag pi la p cap la bla pila) detach di dua person la pi bin la mondea pi la oldeap, la p cap la pila) more person to citybin person la ni në pi citybin i pi bin la oldeag pi la p cap la pila pila) load city garbage truck pl nl në ni në pi bin 1b pi citybin 2 picbl picb2) Nove person to citybin person 1a ni në pa citybin 1 pa bin 1a oldbag pa 1a p cap 1a pala pacbl detach old bag person 1b pa bin 1b newbag pa 1b oldbag pa 1b p cap 1b pa1b) move person to citybin person 1b n1 n0 pa citybin 2 pa bin 1b oldbag pa 1b p cap 1b pa1b pacb2 fill bin completely person to all bin is garbage pl 2a p. cap to alla get now beginning to the person to all bin is garbage pl 1a modes pl 1a p. cap to alla bin is a garbage pl 1a modes pl 1a p. cap to alla bin is a move to bin to change bag person to all bin is a modes pl 1a p. cap bis plia detath old bag person to all bin is a modes pl 1a oldbag pl 1a p. cap 1a plia oad_city_garbage_truck_pa_n1_n0_n1_n0_pa_bin_1a_pa_citybin_1_pacb2_pacb1 get new bag person 1b pl bin 1b garbage pl 1b newbag pl 1b p cap 1b pacb2 bib move to bin to change bag person 1b pl bin 1b newbag pl 1b p cap 1b bib pl1b) nove person_1b p_cap_1b plcb2 i1b) setach_old_bag_person_1b_pl_bin_1b_newbag_pl_1b_oldbag_pl_1b_p_cap_1b_pl1b move person la p cap la picbl ila move person_la p_cap_la pacb1 ila) unload_city_garbage truck_o n1 n0 dumpyard_o ocb1 od1) move person to citybin person 10 m1 n0 pl_citybin 2 pl_bin 10 oldbag pl_10 p_cap_10 pl10 plcb2 load_city_garbage truck pa n1 n0 n1 n0 pa_bin 10 pa_citybin 2 pacb1 pacb2) move person to citybin person 1a n1 n0 pl citybin 1 pl bin 1a oldbag pl 1a p cap 1a pl1a plcb1 load city garbage truck pl n1 n0 n1 n0 pl bin 1a pl citybin 1 plcb2 plcb1 move person_la p_cap_la plobi ila unload_city_garbage truck_pl ni n@ dumpyard_pl plobi pldi ; cost - 71 (general cost) unload city garbage truck pl ni në dumpyard pl plcbi pldi unload city garbage truck pa ni në dumpyard pa pacbi padi unload city garbage truck pl n1 n0 dumpyard pl plcb2 pld1) unload city garbage truck pa n1 n0 dumpyard pa pacb1 pad1) load city garbage truck pl ni në ni në pl bin 10 pl citybin 2 plcbi plcb2) move person ib p cap ib plcb2 iib) unload_city_garbage truck_pl ni në dumpyard_pl plcb2 pldi) unload_city_garbage truck_pa ni në dumpyard_pa pacb2 padi)

Person = 2, Rooms = 2, Garbage = 2 (Organic, Plastic, Paper), Dustbin = 1 (Organic, Plastic, Paper), City Bins = 2 (Organic, Plastic, Paper), Trucks = 1 (Organic, Plastic, Paper), Truck Limit = 2 (City Bin 1, City Bin 2), Dump yard = 1 (Organic, Plastic, Paper), Matric = Distance cost calculation

Blind Hmax Hadd Hff move to room person 1b o bin 1b room 1b garbage o 1b p cap 1b i1b r1b) ove to bin person 1b o bin 1b garbage o 1b p cap 1b r1b o1b) ill bin_partially person_1b o bin 1b garbage o 1b p cap 1b o1b) ove_to_bin_person_1b o_bin_1b garbage_o_1b p_cap_1b r1b o1b] ove to room person 1b o bin 1b room 1b garbage o 1b p cap 1b i1b r1b) ove to room person ia pa bin ia room ia garbage pa ia p cap ia iia ria) fill bin partially person 1b o bin 1b garbage o 1b p cap 1b o1b) move to room person 1b o bin 1b room 1b garbage o 2b p cap 1b o1b r1b) move to bin person 1b o bin 1b garbage o 1b p cap 1b r1b o1b) fill bin partially person 1b o bin 1b garbage o 1b p cap 1b o1b) nome to room person the obin the room to garbage o zb p cap the oth orb) move to bin person the obin the garbage o zb p cap the rib oth) fill this conclusted person to be bin the garbage o zb p cap the oth) get new bag person the obin the garbage o the newbag o the p cap the oth bib) fill bin partially person to so bin to garbage so to p.cop. in pato) some to room person to pl bin to room to garbage pl to p.cop. to pato rio) some to bin person to pl bin to garbage pl to p.cop. tra split pato rio) some to bin person to pl bin to garbage pl to p.cop. tra split fill bin partially person to pl bin to garbage pl to p.cop. to plit) (nowe to bin person to obin the growing or growing to one of the library of the l nove to bin person ia o bin ia garbage o ia p cap ia ria oia) fill bin partially person ia o bin ia garbage o ia p cap ia oia) move to room person is pl bin is room is garbage pl is p cap is ois ris) move to room person ib pl bin ib room ib garbage pl ib p cap ib oib rib) ove to bin to change bag person 1b o bin 1b newbag o 1b p cap 1b b1b o1b) etach old bag person 1b o bin 1b newbag o 1b oldbag o 1b p cap 1b o1b) ove person_1b p_cap_1b o1b pa1b) detach old bag person 1b o bin 1b newbag o 1b oldbag o 1b p cap 1b o1b) move person to citybin person 1b n1 n0 o citybin 2 o bin 1b oldbag o 1b p cap 1b o1b ocb2) move to bin person 1b pl bin 1b garbage pl 1b p cap 1b r1b pl1b) fill bin partially person 1b pl bin 1b garbage pl 1b p cap 1b pl1b) (detach, old log person, i) to , his, ib modus, g, ib oldsug, o. ib p, c, o. jb, to (b) (ment to final person, ii a, p, ii, ja 1 com ja pershag, p, ja p, c, qu, ja 1 si a 12), (ment to his person, ii a, p, ii, ja person, p, ja ja , c, qu, ja a 1 a pala) (iii) (iii) appartial (ja person, ii a, p, ja ii, ja pershag, p, ja p, c, qa ja pala) rial (ment to roma person, ii a, p, iii) a person papa para pa, ja p, c, qa ja palar rial (ment to roma person, ii a, p, iii) a person pa, pa 2 a c, p, ja a c, qa ja palar rial (ment to roma person, ii a, p, iii) a person pa, pa 2 a c, p, ja a p, qa ja palar (iii) (iii) (moditedir) person, ii a, p, iii) a person pa, pa 2 a c, p, ja a p, ja palar (iii) (iii) (moditedir) person, ii a, p, iii) a person pa, ja ii modep, pala 1 c, qoo, ja palar ja) move to bin person la o bin la garbage o la p cap la ria ola) fill bin partially person la o bin la garbage o la p cap la ola) load_city_garbage truck_o n2 n1 n1 n0 o_bin 1b o_citybin_2 od1 ocb2) move_to_room_person_1b pa_bin_1b room_1b garbage_pa_1b p_cap_1b ocb2 r1b) we to room person 1b pl bin 1b room 1b garbage pl 2b p cap 1b pl1b r1b) move to room person 1a o bin 1a room 1a garbage o 2a p cap 1a o1a r1a) move to bin person 1a o bin 1a garbage o 2a p cap 1a r1a o1a) (one: by row person, by a bit is from the parkage put by a cope the odor int)

(one: by the person by a by the player parkage put by a cop, by the path)

(fill bits partially person, by a bit; by perkage put by a cop, by a path)

(one: by the person by a pit; by the privage put by a cop, by a path int)

(one: by the person by a pit; by perkage put by a cop, by a path put)

(one: by the person by a pit; by perkage put by a cop, by a the path)

((fill bits, condicted by person by a pit; by perkage put by a cop, by a the path)

((fill bits, condicted by person by a pit; by perkage put by a cop, by a bit)

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((fill bits, person by a pit; by perkage put by a code pu move to bin person ia pl bin ia garbage pl ia p cap ia ria plia) fill bin partially person ia pl bin ia garbage pl ia p cap ia plia) ill bin completely person la o bin la garbage o 2a p cap la ola) nove to room person la pl bin la room la garbage pl 2a p cap la ola ria ove to bin person la pl bin la garbage pl 2a p cap la ria plia) ill bin completely person la pl bin la garbage pl 2a p cap la plia) move to room person la o bin la room la garbage o 2a p cap la plia ria) move to bin person la o bin la garbage o 2a p cap la ria ola) ove to bin to change bag person la pa bin la newbag pa la p cap la bla pala) ove person to citybin person lb nl n0 o citybin 2 o bin lb oldbag o lb p cap lb olb ocb2) nove to_room person_ia pa_bin_ia room_ia garbage_pa_2a p_cap_ia plia ria) nove_to_bin_person_ia pa_bin_ia garbage_pa_2a p_cap_ia ria paia) fill bin completely person ta o bin ta garbage o 2a p cap ta ota) get new bag person ta o bin ta garbage o ta newbag o ta p cap ta ota bta move to room person 1b pl bin 1b room 1b garbage pl 1b p cap to other 1b) move to bin person 1b pl bin 1b garbage pl 1b p cap 1b rb plib) fill bin person 1b pl bin 1b garbage pl 1b p cap 1b rb plib) move to room person 1b pl bin 1b room 1b garbage pl 1b p cap 1b pltb) move to room person 1b pl bin 1b room 1b garbage pl 2b p cap 1b pltb rlb) Official person is a principal personal ove to bin to change bug person 1a o bin 1a newhag o 1a p cap 1a b1a o1a) etach old bag person 1a o bin 1a newbag o 1a oldbag o 1a p cap 1a o1a) (one per son, cripton, person, of no person by country country country (one) (load city garbage truck pa at at at at one per bit in be activiting past) pack) (one) to room person its plain in room its parkage pl. its p. cap. its pack2 rib) (one) to interpretable plain by garbage pl. its p. cap. its plain pack2 rib) (fill bin partially person its plain by garbage pl. its p. cap. its plain) move person to citybin person la nt n0 o citybin 1 o bin ta oldbag o 1a p cap 1a ota ocb1) get new bag person tb pl bin 1b garbage pl 1b newbag pl 1b p cap 1b pl1b b1b) move to him person lb pl bin is core before pl by one probable pro ove to bin to change bag person 1b pl bin 1b newtag pl 1b p cap 1b b1b pl1b) ove to room person 1a pl bin 1a room 1a garbage pl 2a p cap 1a och1 r1a) oad city garbage truck o n2 n1 n1 n0 o bin 1a o citybin 1 od1 ocb1) (III.) Engapritating person, In a jung, ip persong and ip of company politic ris)

(III.) Engapritating person, In a jung, ip person, paging politic ris)

(III.) Engapritating person, In a jung, ip person, In a jung, In a context, In a context person, In a jung, ip person, In a jung, in person, In a jung, in person, In a context, In a context, In a context person, In a jung, in person, In a context, In a large person, In a jung, In a context, In a jung, In a large person, In a context, I et new bag person ia pa bin ia garbage pa ia newbag pa ia p cap ia ocbi bia éciach old bag person ib pl bin ib newbag pl ib oldhag pl ib p cap ib plib) move person to citybin person ib ni në pl citybin 2 pl bin ib oldhag pl ib p cap ib plib plcb2 (owe to room person, it is 0 high a room, it is privinge 0 in a cop. It is point risk)
(owe to him person it is 0 him, it is private p. 1 in 2 cop. it is cold in
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(feet, but the person is 0 him in he cold citylin in p. bit in the disher, p. it is p. cop it bit is
(owe person to citylin person it is 1 on to citylin in p. bit in the disher, p. it is p. cop it is cold one person to citylin person it is disher to it one to it is cold that in 0 him in disher, p. it is p. cop it is cold one person to citylin person it is disher to it is contained in the cold that in 0 him in disher, p. it is contained to the cold that in 0 him in a disher person is one to take chill move person to citybin person 1a n1 n0 pa citybin 1 pa bin 1a oldbag pa 1a p cap 1a pa1a pacbi get_new_bag person 1a pl_bin 1a garbage_pl_1a newbag_pl_1a p_cap_1a pacbi bia) ove to room person th pa bin th room th garbage pa 2h p cap th plch2 rth) ove to bin to change bag person la pl bin la newbag pl la p cap la bla plla) letach old bag person la pl_bin_la newbag pl la oldbag pl la p cap la plla) wwe person to citybin person la n1 n0 pl citybin 1 pl bin la oldbag pl 1a p cap 1a pl1a plcb1) oad city garbage truck pa n2 n1 n1 n0 pa bin 1a pa citybin 1 pad1 pacb1) move person_ib p_cap_ib plcb2 iib) (move to room person la o bin la room la garbage o la p cap la ila rla) (move to bin person la o bin la garbage o la p cap la rla ola) (fill bin partially person la o bin la garbage o la p cap la ola) oad city garbage truck pl n2 n1 n1 n0 pl bin 1a pl citybin 1 pld1 plcb1) nove person 1a p cap 1a plcb1 i1a) nowe person_is_p_cq_ls picol lis)
nowe to room person_ib o bin ib room_lb garbage_o_lb p_csp_lb paib rib)
nowe to bin person_ib o bin ib garbage_o_lb p_csp_lb rib oib)
fill_bin partially person_ib o_bin_ib garbage_o_lb p_csp_lb oib)
nowe_to_room_person_ib pa_bin_ib room_lb garbage_o_lb p_csp_lb oib) (emergials servoral by p. Boll p. perbags p. By p. cop. 19 (19 1816) (III) List condected persons p. Boll in Genergia, By p. cop. 19 (201) (get_mergia person p. By p. Boll p. perbags p. p. servoga p. 20 (201) (get_mergia person p. Boll p. Boll p. perbags p. p. 10 (201), p. 10 (201), p. 10 (201) (genergia p. 10 (201), p. 10 (move lo room person ta o bin ta room ta garbage o zu p cap ta ota rtu) move lo bin person ta o bin ta garbage o za p cap ta rta ota) ove person to citybin person la nl n0 o citybin l o bin la oldbag o la p cap la ola ocbl ove to room person 1b pa bin 1b room 1b garbage pa 1b p cap 1b plcb2 r1b) mer_to rose person to pa_fon_to rosm_to_grade_pa_t be_to_gl_b or the more_to be prevent pa_gl_bn_grade_pa_t pa_te_pa_t be_to_gl_b and fill_bn_partially person, to pa_bn_gl_bn gel new bag person ta o bin ta garbage o ta newbag o ta p cap ta ota bta) move to bin to change bag person to o bin to newbag o to p cap to bto oto) detach old bag person to o bin to newbag o to oldbag o to p cap to old) move to bin person 1b pa bin 1b garbage pa 1b p cap 1b r1b pa1b) move to room person 1a pl bin 1a room 1a garbage pl 1a p cap 1a ocb1 r1a) (every parties) of the time parties of the property of parties of the parties of move to bin person 1a pl bin 1a garbage pl 1a p cap 1a r1a pl1a) fill bin partially person 1b pa bin 1b garbage pa 1b p cap 1b pa1b) ill_on_parcially person_to pa_son_to geroage_pa_top_com_ino paus) wowe to room person_to pa_bin_to froom_to gerbage_pa_zo po_com_to paulor lob wowe to bin person_to pa_bin_to gerbage_pa_zo p_com_to rib paulo fill_bin_partially person_ta_pl_bin_ta_gerbage_pl_ta_p_com_ta_plata_ta_ wowe_to_room_person_ta_pl_bin_ta_room_ta_gerbage_pl_za_p_com_ta_plata_rta_) move to room person ib o bin ib room ib garbage o 2b p cap ib plib rib) move to bin person ib o bin ib garbage o 2b p cap ib rib oib) (see: §c. room person, i.e. §c. bit, i.e. room_ie_ perhage_p1, 2e_p. cop_ is p (bit e1s) (see: §c. bit person, i.e. § [bit, i.e. perhage_p1, 2e_p. cop_ i.e. i.e. plan) (fill] bit, completely person, i.e. plan, i.e. perhage_p2 = p_ cop_ is path) (fill] bit, completely person, i.e. plan, i.e. perhage_p2 = p_ cop_ is path) (get_see, bit_p2 person i.e. plan, i.e. perhage_p2 = b_ code_p2 = b_ p_ cop_ is beath) (get_see, bit_p2 person, i.e. plan, i.e. plan, i.e. sode_p2 = b_ cop_ is bit_p2 = b_ cop_ is b_ cop_ is b_ cop_ is b_ cop_ is bit_ ove to bin person 1b pa_bin 1b garbage_pa_2b p_cap_1b r1b pa1b) ill_bin_completely person_1b pa_bin_1b garbage_pa_2b p_cap_1b pa1b fill bin completely person 1a pa bin 1a garbage pa 2a p cap 1a pa1a) get new bag person 1a pa bin 1a garbage pa 1a newbag pa 1a p cap 1a pa1a b1a) move_person_to_citybin_person_ib_ni_n0_o_citybin_2_o_bin_ib_oldbag_o_ib_p_cap_ib_oib_ocb2) detach_old_bag_person_ia_pl_bin_ia_newbag_pl_ia_oldbag_pl_ia_p_cap_ia_plia) nove_to_room_person_tb_pl_bin_tb_room_tb_garbage_pl_2b_p_cap_tb_pa1b_r1b) nove_to_bin_person_tb_pl_bin_tb_garbage_pl_2b_p_cap_tb_r1b_pl1b) load_city_garbage truck_pl n2 ni n1 n0 pl bin_10 pl_citydin_2 pldi plcb2) nove_person_to_citybin person_1a n1 n0 pl_citybin_1 pl_bin_1a oldsag_pl_1a p_cap_1a plia plcb1) load_city_garbage truck_pl ni n0 ni n0 pl_bin_1a pl_citybin_1 plcb2 plcb1) ill bin completely person 1b pl bin 1b garbage pl 2b p cap 1b pl1b) et new_bag person_1b o bin_1b garbage_o_1b newbag_o_1b p_cap_1b pl1b b1b] move person to citybin person 1a n1 n0 pa citybin 1 pa bin 1a oldbag pa 1a p cap 1a pa1a pacb load city garbage truck pa n1 n0 n1 n0 pa bin 1a pa citybin 1 pacb2 pacb1) ove to bin to change bag person 1b o bin 1b newbag o 1b p cap 1b bib oib) letach old bag person 1b o bin 1b newbag o 1b oldbag o 1b p cap 1b oib) move_to_room person_ia pa_bin_ia room_ia garbage_pa_2a p_cap_ia plobi ria) move_to_bin person_ia pa_bin_ia garbage_pa_2a p_cap_ia ria paia) move to bin person la pl bin la garbage pl la p cap la rla plla) fill bin partially person la pl bin la garbage pl la p cap la plla) move to room person la pl bin la room la garbage pl 2a p cap la plla rla) move person to citybin person 1b n1 n0 o citybin 2 o bin 1b oldbag o 1b p cap 1b o1b ocb2) get_new_bag person 1b pa_bin 1b garbage_pa_1b newbag_pa_1b p cap_1b ocb2 b1b) mload_city_garbage_truck_pl_n1 n0 dumpyand_pl_plcb1 pld1) Fill_bin_completely_person_1a pa_bin_1a garbage_pa_2a p_cap_1a pa1a) load_city_garbage_truck_o n2 n1 n1 n0 o_bin_1b o_citybin_2 odi ocb2) ove person to citybin person 1b n1 n0 pa citybin 2 pa bin 1b oldbag pa 1b p cap 1b pa1b pacb2 oad_city_garbage truck_pa n2 n1 n1 n0 pa_bin 1b pa_citybin 2 pad1 pacb2) move to bin to change bag person 1b pa bin 1b newbag pa 1b p cap 1b b1b paib) detach old bag person 1b pa bin 1b newbag pa 1b oldbag pa 1b p cap 1b paib) oad city garbage truck pl n2 n1 n1 n0 pl bin 1b pl citybin 2 pld1 plcb2) oad city garbage truck o n2 n1 n1 n0 o bin 1b o citybin 2 od1 ocb2) oad_city_garbage_truck_o ni n0 ni n0 o_bin_ia o_citybin_i ocb2 ocbi) (sected in the great of the great is recovery); we conseque to the great per point path path pack (see person to citythin person is in it is participal, 2 pa bin ; boldseg pa it p cop it path pack (set new hap person is p li hin; to garbage p li to meskeg p li to ; cop it packs bits) (see to bin to change hap person is p li hin; to meskeg p li to cap it be put bit by plits) (detach old hap person is p li hin; to meskeg p li to iddag p li to ; cop, to p lib) get new bag person 1a pa bin 1a garbage pa 1a newbag pa 1a p_cap_1a pa1a b1a) move_to_bin_to_change_bag person_1a pa_bin_1a newbag pa_1a p_cap_1a b1a pa1a) oad city garbage truck pa n1 n0 n1 n0 pa bin 1a pa citybin 1 pacb2 pacb1) ove person to citybin person 1a n1 n0 p1 citybin 1 p1 bin 1a oldbag p1 1a p cap 1a p11a p1cbi move person_1b p_cap_1b ocb2 i1b) etach old bag person ia pa bin ia newbag pa ia oldbag pa ia p cap ia paia) oad city garbage truck o n1 m0 n1 m0 o bin 1a o citybin 1 ocb2 ocb1) move person to citybin person ia ni n0 pa citybin i pa bin ia oldbag pa ia p cap ia paia pacbi move person ia p cap ia pacbi iia) move person ib p cap ib plcb2 iib) move person la p cap la plcb1 ila) oad_city_garbage_truck_pa n1 n0 n1 n0 pa_bin_1b pa_citybin_2 pacb1 pacb2) unload_city_garbage_truck_o n1 n0 dumpyard_o ocb1 od1) load_city_garbage_truck_pa n2 n1 n1 n0 pa_bin_1b pa_citybin_2 pad1 pacb2) mload city garbage truck pa n1 n0 dumpyard na pucb2 pad1) oad_city_garbage truck pl n1 n0 n1 n0 pl bin_1b pl_citybin_2 plcb1 plcb2 unload city garbage truck pl mi mê dumpyard pl plcbi pldi) unload city garbage truck pa mi mê dumpyard pa pacbi padi) mload_city_garbage_truck_pl n1 n0 dumpyard_pl plcb1 pld1) mload_city_garbage_truck_pa n1 n0 dumpyard_pa_pacb1 pad1) unload_city_garbage_truck_pl m1 ne_dumpyard_pl plcb2 pld1) load_city_garbage_truck_o n1 ne_n1 ne_o_bin_ib_o_citybin_2 ocb1 ocb2) nload city garbage truck pa ni n0 dumpyard pa pacbi padi) nload_city_garbage truck_o n1 n0 dumpyard_o ocb2 od1) rost = 82 (general cost)

Person = 3, Rooms = 3, Garbage = 2 (Organic, Plastic, Paper), Dustbin = 1 (Organic, Plastic, Paper), City Bins = 2 (Organic, Plastic, Paper), Trucks = 1 (Organic, Plastic, Paper), Truck Limit = 2 (City Bin 1, City Bin 2), Dump yard = 1 (Organic, Plastic, Paper), Matric = Distance cost calculation

Blind	Hmax	Hadd	Hff
Not Executable (Take too much time and then terminate automatically)	Not Executable (Take too much time and then terminate automatically)	(exceptional property) 114 old) (exceptional property) 12 pt. District property 13 pt. District property 14 pt. District	Not Executable (Take too much time and then terminate automatically)

THANK YOU FOR YOUR KIND ATTENTION