CS 312: Artificial Intelligence Laboratory
Lab 9 Report

S V Praveen - 170010025

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1 Input 2: Stack Visualization

Pushed Goal state into stack initially.

1. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)
   (on b c)

   Pushed stack ['a', 'b'] and preconditions

2. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)
   (on b c)
   (stack a b)
   (AE)∧(clear b)∧(clear a)
   (AE)
   (clear b)

3. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)
   (on b c)
   (stack a b)
   (AE)∧(clear b)∧(clear a)
   (AE)

4. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)
   (on b c)
   (stack a b)
   (AE)∧(clear b)∧(clear a)

5. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)
   (on b c)
   (stack a b)

6. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)
   (on b c)

7. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)

   Pushed stack ['b', 'c'] and preconditions

8. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)
   (stack b c)
   (AE)∧(clear c)∧(clear b)
   (AE)
   (clear c)

   Pushed unstack ['a', 'b'] and preconditions

9. **Stack:** pop()

   (on c d)∧(on b c)∧(on a b)
   (on c d)
   (stack b c)
   (AE)∧(clear c)∧(clear b)
   (AE)
   (clear c)
   (unstack a b)
   (AE)∧(clear a)∧(on a b)
   (AE)
   (clear a)

10. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)
(unstack a b)
(AE)∧(clear a)∧(on a b)
(AE)

11. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)
(unstack a b)
(AE)∧(clear a)∧(on a b)

12. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)
(unstack a b)

13. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)

14. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)

15. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)

Pushed putdown ['a'] and preconditions

16. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(putdown a)
(hold a)

17. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(putdown a)

18. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)

19. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)

20. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)

21. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)

Pushed stack ['c', 'd'] and preconditions

22. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(AE)
(clear d)

Pushed unstack ['b', 'c'] and preconditions

23. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(AE)
(clear d)
(unstack b c)
(AE)∧(clear b)∧(on b c)
(AE)
(clear b)

24. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(AE)
(clear d)
(unstack b c)
(AE)∧(clear b)∧(on b c)
(AE)

25. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(AE)
(clear d)
(unstack b c)
(AE)∧(clear b)∧(on b c)

26. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(AE)
(clear d)
(unstack b c)

27. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(AE)
(clear d)

28. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(AE)

29. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)

Pushed putdown ['b'] and preconditions

30. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(putdown b)
(hold b)

31. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)
(putdown b)

32. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)
(AE)∧(clear d)∧(clear c)

33. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(stack c d)

34. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)

35. **Stack:** pop()

    □

36. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)

    Pushed stack ['a', 'b'] and preconditions

37. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)
    (stack a b)
    (AE)∧(clear b)∧(clear a)
    (AE)
    (clear b)

38. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)
    (stack a b)
    (AE)∧(clear b)∧(clear a)
    (AE)

39. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)
    (stack a b)
    (AE)∧(clear b)∧(clear a)

40. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)
    (stack a b)

41. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)

42. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)

Pushed stack ['b', 'c'] and preconditions

43. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)

Pushed unstack ['a', 'b'] and preconditions

44. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)
(unstack a b)
(AE)∧(clear a)∧(on a b)
(AE)
(clear a)

45. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)
(unstack a b)
(AE)∧(clear a)∧(on a b)
(AE)

46. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)
(unstack a b)
(AE)∧(clear a)∧(on a b)

47. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)
(unstack a b)

48. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)
(clear c)

49. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(AE)

50. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)

Pushed putdown ['a'] and preconditions

51. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(putdown a)
(hold a)

52. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(stack b c)
(AE)∧(clear c)∧(clear b)
(putdown a)

53. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (stack b c)
    (AE)∧(clear c)∧(clear b)

54. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (stack b c)

55. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)

56. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)

57. **Stack:** pop()

    □

58. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)

    Pushed stack ['a', 'b'] and preconditions

59. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)
    (stack a b)
    (AE)∧(clear b)∧(clear a)
    (AE)
    (clear b)

60. **Stack:** pop()

    (on c d)∧(on b c)∧(on a b)
    (on c d)
    (on b c)
    (stack a b)
    (AE)∧(clear b)∧(clear a)
    (AE)

61. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(on b c)
(stack a b)
(AE)∧(clear b)∧(clear a)

62. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(on b c)
(stack a b)

63. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)
(on b c)

64. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)
(on c d)

65. **Stack:** pop()

(on c d)∧(on b c)∧(on a b)

66. **Stack:** pop()

EMPTY