

# Task 1: Turn on all lights

First action: turn\_on\_lightbulb

## Current State



## LLM Output

To accomplish the goal where both the led and the lightbulb should be turned on, the following actions might be relevant:

```
```python
['turn_on_led', 'turn_on_lightbulb']
```
```

In this plan:

- If the led is not yet on, `turn\_on\_led` would be required.
- If the lightbulb is not yet on, `turn\_on\_lightbulb` would be required.

These actions are both potentially necessary to meet the goal predicate, so they are both included without a specific order as any of them may need to be performed, depending on the current state.

## Feasibility Predictions

rotate\_red\_block\_right: 0.12657739222049713  
rotate\_blue\_block\_right: 0.12310975044965744  
close\_drawer: 0.11055950075387955  
place\_in\_drawer: 0.10410185903310776  
lift\_pink\_block\_drawer: 0.10159771144390106  
place\_on\_table: 0.10029682517051697  
lift\_blue\_block\_drawer: 0.09623400121927261  
rotate\_pink\_block\_right: 0.09613391757011414  
lift\_red\_block\_drawer: 0.08970076590776443  
**turn\_on\_lightbulb: 0.007990284822881222**  
turn\_off\_led: 0.005531634204089642  
turn\_off\_lightbulb: 0.004242268390953541  
move\_slider\_left: 0.004128830973058939  
turn\_on\_led: 0.004027204122394323  
move\_slider\_right: 0.0026684030890464783  
lift\_blue\_block\_slider: 0.0025691641494631767  
lift\_pink\_block\_table: 0.0022313373629003763  
lift\_red\_block\_table: 0.0021314648911356926  
rotate\_red\_block\_left: 0.002017179736867547  
stack\_block: 0.0019424910424277186  
lift\_blue\_block\_table: 0.0017357077449560165  
push\_red\_block\_right: 0.0014356535393744707  
rotate\_blue\_block\_left: 0.0014018765650689602  
push\_red\_block\_left: 0.001288998988457024  
open\_drawer: 0.0012280744267627597  
lift\_pink\_block\_slider: 0.0011945596197620034  
place\_in\_slider: 0.001104534137994051  
push\_pink\_block\_left: 0.0010355043923482299  
rotate\_pink\_block\_left: 0.0009802045533433557  
push\_pink\_block\_right: 0.0008028724696487188  
unstack\_block: 0.0  
push\_blue\_block\_left: 0.0  
lift\_red\_block\_slider: 0.0  
push\_blue\_block\_right: 0.0  
push\_into\_drawer: 0.0

# Task 1: Turn on all lights

## Second action: turn\_on\_led

Success

### Current State



### LLM Output

Since the goal is to have both the led and the lightbulb turned on, and the lightbulb has already been turned on, the next relevant action is to turn on the led.

```
```python  
['turn_on_led']  
```
```

### Feasibility Predictions

rotate\_red\_block\_right: 0.036042775958776474  
rotate\_blue\_block\_right: 0.03601495176553726  
close\_drawer: 0.035907454788684845  
place\_in\_drawer: 0.03584742173552513  
lift\_pink\_block\_drawer: 0.035823166370391846  
place\_on\_table: 0.035810329020023346  
lift\_blue\_block\_drawer: 0.03576918691396713  
rotate\_pink\_block\_right: 0.03576815128326416  
lift\_red\_block\_drawer: 0.03569934517145157  
turn\_on\_lightbulb: 0.033378154039382935  
turn\_off\_led: 0.03303864225745201  
turn\_off\_lightbulb: 0.032795775681734085  
move\_slider\_left: 0.032771073281764984  
**turn\_on\_led**: 0.032748378813266754  
move\_slider\_right: 0.032375775277614594  
lift\_blue\_block\_slider: 0.03234168142080307  
lift\_pink\_block\_table: 0.0322151705622673  
lift\_red\_block\_table: 0.032174184918403625  
rotate\_red\_block\_left: 0.03212492913007736  
stack\_block: 0.03209124878048897  
lift\_blue\_block\_table: 0.031990982592105865  
push\_red\_block\_right: 0.031822625547647476  
rotate\_blue\_block\_left: 0.03180157020688057  
push\_red\_block\_left: 0.03172743692994118  
open\_drawer: 0.031684760004282  
lift\_pink\_block\_slider: 0.03166039660573006  
place\_in\_slider: 0.0315915010869503  
push\_pink\_block\_left: 0.03153487294912338  
rotate\_pink\_block\_left: 0.031486790627241135  
push\_pink\_block\_right: 0.03131258115172386  
unstack\_block: 0.0007077483460307121  
push\_into\_drawer: 0.0007077475893311203  
lift\_red\_block\_slider: 0.0001757201098371297  
push\_blue\_block\_left: 0.00017563649453222752  
push\_blue\_block\_right: 0.00017409892461728305

## Task 2: Place all blocks in the drawer First action: close\_drawer

### Current State



### LLM Output

To achieve the goal of having the blue, red, and pink blocks all inside the drawer, we need to consider the following actions:

1. **open\_drawer**: Make sure the drawer is open so that blocks can be placed inside it.
2. **lift\_blue\_block\_table**, **lift\_blue\_block\_slider**: If the blue block is on the table or in the slider, lift it.
3. **place\_in\_drawer**: After lifting the blue block, place it in the drawer.
4. **lift\_red\_block\_table**, **lift\_red\_block\_slider**: Similarly, if the red block is on the table or in the slider, lift it.
5. **place\_in\_drawer**: After lifting the red block, place it in the drawer.
6. **lift\_pink\_block\_table**, **lift\_pink\_block\_slider**: For the pink block, if it's on the table or in the slider, lift it.
7. **place\_in\_drawer**: After lifting the pink block, place it in the drawer.
8. **close\_drawer**: Optionally, close the drawer once all blocks are placed inside.

These are the most critical actions to complete the task, assuming some blocks might already be in different locations and we need to centralize them in the drawer. The next step involves detailing which specific 'lift' operations are necessary depending on the initial locations of the blocks.

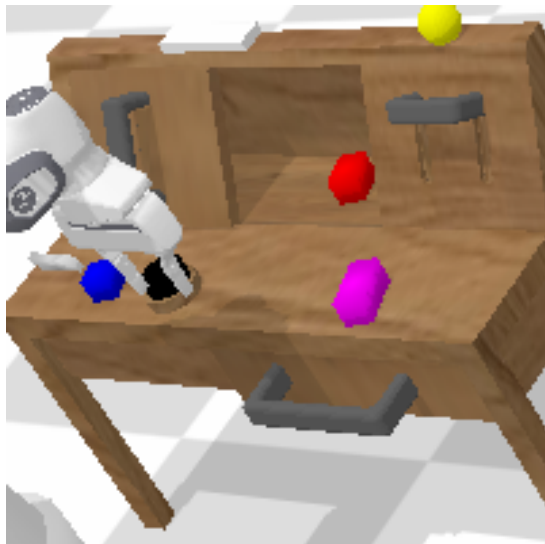
```
```python
[
    'open_drawer',
    'lift_blue_block_table', 'lift_blue_block_slider',
    'place_in_drawer',
    'lift_red_block_table', 'lift_red_block_slider',
    'place_in_drawer',
    'lift_pink_block_table', 'lift_pink_block_slider',
    'place_in_drawer',
    'close_drawer'
]
```
```

### Feasibility Predictions

rotate\_red\_block\_right: 0.03465082123875618  
rotate\_blue\_block\_right: 0.03463397175073624  
**close\_drawer**: 0.03456882759928703  
place\_in\_drawer: 0.034532416611909866  
lift\_pink\_block\_drawer: 0.03451769798994064  
place\_on\_table: 0.03450990840792656  
lift\_blue\_block\_drawer: 0.03448493406176567  
rotate\_pink\_block\_right: 0.03448430448770523  
lift\_red\_block\_drawer: 0.03444250673055649  
turn\_on\_lightbulb: 0.03301454335451126  
turn\_off\_led: 0.03280263766646385  
turn\_off\_lightbulb: 0.03265056386590004  
move\_slider\_left: 0.03263507038354874  
turn\_on\_led: 0.032620836049318314  
move\_slider\_right: 0.03238658234477043  
lift\_blue\_block\_slider: 0.0323650985956192  
lift\_pink\_block\_table: 0.03228529915213585  
lift\_red\_block\_table: 0.03225942328572273  
rotate\_red\_block\_left: 0.03222830966114998  
stack\_block: 0.032207027077674866  
lift\_blue\_block\_table: 0.03214361518621445  
push\_red\_block\_right: 0.03203696757555008  
rotate\_blue\_block\_left: 0.03202361240983009  
push\_red\_block\_left: 0.03197657689452171  
open\_drawer: 0.0319494791328907  
lift\_pink\_block\_slider: 0.03193400427699089  
place\_in\_slider: 0.031890224665403366  
push\_pink\_block\_left: 0.03185420483350754  
rotate\_pink\_block\_left: 0.03182360902428627  
push\_pink\_block\_right: 0.0317126028239727  
unstack\_block: 0.0029150519985705614  
push\_into\_drawer: 0.0029150506015866995  
lift\_red\_block\_slider: 0.0012121826875954866  
push\_blue\_block\_left: 0.0012118191225454211  
push\_blue\_block\_right: 0.0012051269877701998

## Task 2: Place all blocks in the drawer    Second action: close\_drawer    Failure

### Current State



### LLM Output

Based on the task environment provided and the goal:

Goal predicate:  
...

(and (is-in blue\_block drawer) (is-in red\_block drawer) (is-in pink\_block drawer))  
...

The goal requires having the blue, red, and pink blocks all placed inside the drawer. Given that the last executed action was `close\_drawer`, the drawer is currently closed, and we need to make sure all blocks are inside the drawer before closing it. The robot should first check if all blocks are already inside the drawer. However, since you've described the environment without exact placements, I'll provide a sequence assuming that each block might currently not be in the drawer. Here's a comprehensive list of possible next steps/ actions to eventually achieve the given predicate:

```
```python
[
    'open_drawer',      # First, the drawer must be reopened if the task is to be
                        # completed as described.
    'lift_blue_block_table', # These actions might change according to where
                        # the blocks are initially placed.
    'place_in_drawer',    # Place the lifted blue block inside the drawer.
    'lift_red_block_table', # Repeat for each block according to its initial
                        # position.
    'place_in_drawer',    # Place the lifted red block inside the drawer.
    'lift_pink_block_table', # Continue with the pink block.
    'place_in_drawer',    # Place the lifted pink block inside the drawer.
    'close_drawer'       # Close the drawer after all blocks are placed inside.
]
```
```

If you confirm where the blocks are initially, I can refine the sequence accordingly. This sequence assumes all blocks start on the table as the initial move for each.

### Feasibility Predictions

rotate\_red\_block\_right: 0.03493369743227959  
rotate\_blue\_block\_right: 0.03491497412323952  
close\_drawer: 0.0348426029086113  
place\_in\_drawer: 0.0348021574318409  
lift\_pink\_block\_drawer: 0.034785810858011246  
place\_on\_table: 0.03477715700864792  
lift\_blue\_block\_drawer: 0.03474941849708557  
rotate\_pink\_block\_right: 0.03474872186779976  
lift\_red\_block\_drawer: 0.03470230475068092  
turn\_on\_lightbulb: 0.033120036125183105  
turn\_off\_led: 0.032885823398828506  
turn\_off\_lightbulb: 0.032717835158109665  
move\_slider\_left: 0.03270072489976883  
turn\_on\_led: 0.03268500044941902  
move\_slider\_right: 0.032426413148641586  
lift\_blue\_block\_slider: 0.032402705401182175  
lift\_pink\_block\_table: 0.03231466934084892  
lift\_red\_block\_table: 0.03228612616658211  
rotate\_red\_block\_left: 0.03225180506706238  
stack\_block: 0.03222833573818207  
lift\_blue\_block\_table: 0.03215840458869934  
push\_red\_block\_right: 0.03204083442687988  
rotate\_blue\_block\_left: 0.03202611580491066  
push\_red\_block\_left: 0.03197427839040756  
open\_drawer: 0.03194441646337509  
lift\_pink\_block\_slider: 0.03192736208438873  
place\_in\_slider: 0.03187912330031395  
push\_pink\_block\_left: 0.03183944523334503  
rotate\_pink\_block\_left: 0.03180573880672455  
push\_pink\_block\_right: 0.031683485954999924  
unstack\_block: 0.002282371511682868  
push\_into\_drawer: 0.0022823696490377188  
lift\_red\_block\_slider: 0.0008677417645230889  
push\_blue\_block\_left: 0.0008674553246237338  
push\_blue\_block\_right: 0.0008621769375167787

# Task 3: Place the red block on the table    First action: place\_on\_table    Failure

## Current State



## LLM Output

For the goal predicate `(is-on red\_block table)`, the task is to ensure the red block is on the table. Below are potential actions to achieve this:

1. If the red block is somewhere other than the table (e.g., slider or drawer), it first needs to be lifted from its current location and placed on the table.
2. If the red block is already on the table, then no action may be required.

Let's detail the necessary actions:

- **\*\*If the red block is in the slider\*\***, the action needed would be `lift\_red\_block\_slider` followed by `place\_on\_table`.
- **\*\*If the red block is in the drawer\*\***, the drawer needs to be opened first if it isn't already, then `lift\_red\_block\_drawer` would be executed followed by `place\_on\_table`.
- **\*\*If the red block is already on the table\*\***, the action would be `do\_nothing`.

```
```python
[open_drawer, 'lift_red_block_drawer', 'place_on_table', 'lift_red_block_slider',
'place_on_table', 'do_nothing']
```
```

## Feasibility Predictions

rotate\_red\_block\_right: 0.0347280316054821  
rotate\_blue\_block\_right: 0.03471069037914276  
close\_drawer: 0.03464364632964134  
place\_in\_drawer: 0.034606173634529114  
lift\_pink\_block\_drawer: 0.03459102287888527  
**place\_on\_table**: 0.034583013504743576  
lift\_blue\_block\_drawer: 0.03455730527639389  
rotate\_pink\_block\_right: 0.034556660801172256  
lift\_red\_block\_drawer: 0.034513648599386215  
turn\_on\_lightbulb: 0.03304503858089447  
turn\_off\_led: 0.03282725065946579  
turn\_off\_lightbulb: 0.032670971006155014  
move\_slider\_left: 0.032655052840709686  
turn\_on\_led: 0.032640423625707626  
move\_slider\_right: 0.0323997400701046  
lift\_blue\_block\_slider: 0.03237766772508621  
lift\_pink\_block\_table: 0.032295696437358856  
lift\_red\_block\_table: 0.03226911276578903  
rotate\_red\_block\_left: 0.03223715350031853  
stack\_block: 0.032215289771556854  
lift\_blue\_block\_table: 0.03215015307068825  
push\_red\_block\_right: 0.03204061836004257  
rotate\_blue\_block\_left: 0.032026905566453934  
push\_red\_block\_left: 0.03197860345244408  
open\_drawer: 0.03195076808333397  
lift\_pink\_block\_slider: 0.03193487972021103  
place\_in\_slider: 0.03188991919159889  
push\_pink\_block\_left: 0.03185293450951576  
rotate\_pink\_block\_left: 0.03182151541138535  
push\_pink\_block\_right: 0.0317075289785862  
unstack\_block: 0.0027331754099577665  
push\_into\_drawer: 0.0027331742458045483  
lift\_red\_block\_slider: 0.0011100157862529159  
push\_blue\_block\_left: 0.0011096742236986756  
push\_blue\_block\_right: 0.0011033813934773207

# Task 4: Place the red block on the table    First action: move\_slider\_left    Failure

## Current State



## LLM Output

To accomplish the goal of having the slider on the left, the robot would need to perform the action to move the slider left if it is not already in that position. If the slider is already on the left, the robot should do nothing.

```
```python
[move_slider_left, 'do_nothing']
```
```

## Feasibility Predictions

rotate\_red\_block\_right: 0.06678956747055054  
rotate\_blue\_block\_right: 0.06625565141439438  
close\_drawer: 0.06422886252403259  
place\_in\_drawer: 0.06312159448862076  
lift\_pink\_block\_drawer: 0.06267905235290527  
place\_on\_table: 0.062446098774671555  
lift\_blue\_block\_drawer: 0.06170441210269928  
rotate\_pink\_block\_right: 0.06168586015701294  
lift\_red\_block\_drawer: 0.06046361103653908  
turn\_on\_lightbulb: 0.03006315790116787  
turn\_off\_led: 0.027032582089304924  
turn\_off\_lightbulb: 0.025037165731191635  
move\_slider\_left: 0.024841850623488426  
turn\_on\_led: 0.02466360479593277  
move\_slider\_right: 0.02189812995493412  
lift\_blue\_block\_slider: 0.021659638732671738  
lift\_pink\_block\_table: 0.020795052871108055  
lift\_red\_block\_table: 0.020521722733974457  
rotate\_red\_block\_left: 0.020197533071041107  
stack\_block: 0.019978540018200874  
lift\_blue\_block\_table: 0.019339241087436676  
push\_red\_block\_right: 0.01830723136663437  
rotate\_blue\_block\_left: 0.01818171702325344  
push\_red\_block\_left: 0.01774601638317108  
open\_drawer: 0.017499471083283424  
lift\_pink\_block\_slider: 0.017360122874379158  
place\_in\_slider: 0.01697150431573391  
push\_pink\_block\_left: 0.01665796898305416  
rotate\_pink\_block\_left: 0.016395889222621918  
push\_pink\_block\_right: 0.015477188862860203  
unstack\_block: 1.2138843177473003e-19  
push\_into\_drawer: 1.2138703590744635e-19  
lift\_red\_block\_slider: 6.24747268574964e-26  
push\_blue\_block\_left: 6.216663353317684e-26  
push\_blue\_block\_right: 5.673739079763056e-26