```python
#!/usr/bin/env python3
"""
Obtain and print the names of the packages without the cpu architecture (similar to A/installed4.py) that were
installed within
the range of dates provided by the user (i.e., variables date_from and date_to).

* Dates provided by the user should follow the format yyyy-mm-dd
* The output for each package belonging to the specified range should be:
yyyy-mm-dd: NAME_OF_PACKAGE
* An example of output from the program is described in range-2020-07-15-to-2020-07-16.txt

"""

import re
import sys
from datetime import datetime

def main():
    if len(sys.argv) < 3:
        sys.exit(0)
    date_from = sys.argv[1]
    date_to = sys.argv[2]

    try:
        # Convert dates to datetime objects for comparison
        date_from_obj = datetime.strptime(date_from, "%Y-%m-%d")
        date_to_obj = datetime.strptime(date_to, "%Y-%m-%d")
    except ValueError:
        sys.exit(0)  # Exit silently if dates are invalid

    # Dictionary to track unique package events per date in order of appearance
    packages_seen = {}  # {(date, package): True}
    package_events = []

    try:
        with open('dpkg.log') as file:
            for line in file:
                # Extract date from log line
                date_match = re.match(r"(\d{4}-\d{2}-\d{2})", line.strip())
                if not date_match:
                    continue

                date_str = date_match.group(1)
                log_date = datetime.strptime(date_str, "%Y-%m-%d")

                # Check if date is in range
                if date_from_obj <= log_date <= date_to_obj:
                    # Check for status installed
                    if "status installed" in line:
                        package_match = re.search(r"status installed ([^:]+):([^ ]+)", line)
                        if package_match:
                            package_name = package_match.group(1)
                            # Skip if we've seen this package for this date already
                            if (date_str, package_name) not in packages_seen:
                                packages_seen[(date_str, package_name)] = True
                                package_events.append((date_str, package_name))

                    # Check for remove events
                    elif "remove " in line:
                        package_match = re.search(r"remove ([^:]+):([^ ]+)", line)
                        if package_match:
                            package_name = package_match.group(1)
                            # Skip if we've seen this package for this date already
                            if (date_str, package_name) not in packages_seen:
                                packages_seen[(date_str, package_name)] = True
                                package_events.append((date_str, package_name))
    except FileNotFoundError:
        sys.exit(0)  # Exit silently if dpkg.log is not found

    # Print all package events in the order they were first seen
    for date, package in package_events:
        print(f"{date}: {package}")

if __name__ == "__main__":
    main()
```

```
tanujd@TDLegion-Slim7i:~/seng265/labs/lab-09/B$ python3 installed-range.py 2020-07-15 2020-07-16
2020-07-15: linux-libc-dev
2020-07-15: linux-headers-4.15.0-111
2020-07-15: linux-modules-4.15.0-111-generic
2020-07-15: linux-image-4.15.0-111-generic
2020-07-15: linux-image-virtual
2020-07-15: linux-headers-4.15.0-111-generic
2020-07-15: linux-headers-generic
2020-07-15: linux-headers-virtual
2020-07-15: linux-virtual
2020-07-16: linux-headers-4.15.0-108-generic
2020-07-16: linux-headers-4.15.0-108
2020-07-16: linux-image-4.15.0-108-generic
2020-07-16: linux-modules-4.15.0-108-generic
2020-07-16: snapd
2020-07-16: mime-support
2020-07-16: man-db
```

```
tanujd@TDLegion-Slim7i:~/seng265/labs$ git status
On branch master
Your branch is up to date with 'origin/master'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        lab-09/

nothing added to commit but untracked files present (use "git add" to track)
tanujd@TDLegion-Slim7i:~/seng265/labs$ git add .
tanujd@TDLegion-Slim7i:~/seng265/labs$ git commit -m "Lab 09 Submission"
[master 47265bf] Lab 09 Submission
 49 files changed, 1531 insertions(+)
 create mode 100644 labs/lab-09/A/installed.py
 create mode 100644 labs/lab-09/A/installed2.py
 create mode 100644 labs/lab-09/A/installed3.py
 create mode 100644 labs/lab-09/A/installed4.py
 create mode 100644 labs/lab-09/B/dpkg.log
 create mode 100644 labs/lab-09/B/installed-range.py
 create mode 100644 labs/lab-09/B/range-2020-07-15-to-2020-07-16.txt
 create mode 100644 labs/lab-09/C/subbing.py
 create mode 100644 labs/lab-09/D/data.csv
 create mode 100644 labs/lab-09/D/gen-messages.py
 create mode 100644 labs/lab-09/D/messages/aka8291.txt
 create mode 100644 labs/lab-09/D/messages/b2k7691.txt
 create mode 100644 labs/lab-09/D/messages/btt5791.txt
 create mode 100644 labs/lab-09/D/messages/cu2781.txt
 create mode 100644 labs/lab-09/D/messages/dgmw7691.txt
 create mode 100644 labs/lab-09/D/messages/diy1091.txt
 create mode 100644 labs/lab-09/D/messages/eobd5691.txt
 create mode 100644 labs/lab-09/D/messages/eod3891.txt
 create mode 100644 labs/lab-09/D/messages/eom2591.txt
 create mode 100644 labs/lab-09/D/messages/faq3891.txt
 create mode 100644 labs/lab-09/D/messages/fka6491.txt
 create mode 100644 labs/lab-09/D/messages/fwiw1691.txt
 create mode 100644 labs/lab-09/D/messages/fyi0891.txt
 create mode 100644 labs/lab-09/D/messages/hth6591.txt
 create mode 100644 labs/lab-09/D/messages/idk3891.txt
 create mode 100644 labs/lab-09/D/messages/iirc7791.txt
 create mode 100644 labs/lab-09/D/messages/imnsho8691.txt
 create mode 100644 labs/lab-09/D/messages/imo5191.txt
 create mode 100644 labs/lab-09/D/messages/iow2891.txt
 create mode 100644 labs/lab-09/D/messages/lol7391.txt
 create mode 100644 labs/lab-09/D/messages/mmw5591.txt
 create mode 100644 labs/lab-09/D/messages/nntr5091.txt
 create mode 100644 labs/lab-09/D/messages/noyb8591.txt
 create mode 100644 labs/lab-09/D/messages/otoh0791.txt
 create mode 100644 labs/lab-09/D/messages/pov1391.txt
 create mode 100644 labs/lab-09/D/messages/rotfl2691.txt
 create mode 100644 labs/lab-09/D/messages/rsvp6691.txt
 create mode 100644 labs/lab-09/D/messages/scnr8491.txt
 create mode 100644 labs/lab-09/D/messages/sflr9491.txt
 create mode 100644 labs/lab-09/D/messages/spoc4591.txt
 create mode 100644 labs/lab-09/D/messages/tbc8291.txt
 create mode 100644 labs/lab-09/D/messages/tgif2191.txt
 create mode 100644 labs/lab-09/D/messages/thx6771.txt
 create mode 100644 labs/lab-09/D/messages/tia1791.txt
 create mode 100644 labs/lab-09/D/messages/tyt9891.txt
 create mode 100644 labs/lab-09/D/messages/wfm2691.txt
 create mode 100644 labs/lab-09/D/messages/wrt7591.txt
 create mode 100644 labs/lab-09/D/messages/wth6591.txt
 create mode 100644 labs/lab-09/D/messages/ymmv3491.txt
tanujd@TDLegion-Slim7i:~/seng265/labs$ git push
     _____                    _                          _
    | ____| _ __     __ _ (_) _ __     ___   ___   _ __ (_) _ __     __ _
    |  _|  | '_ \   / _` || || '_ \   / _ \ / _ \ | '__|| || '_ \   / _` |
    | |___ | | | || (_| || || | | ||  __/|  __/ |   | || | | || (_| |
    |_____||_| |_| \__, ||_||_| |_| \___| \___||_|   |_||_| |_| \__, |
                   |___/                                        |___/

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   Use of this system must adhere to:
   'Policy IM7200: Responsible Use of Information Technology Services',
   http://www.uvic.ca/universitysecretary/assets/docs/policies/IM7200_6030_.pdf

   AND

   'Software Engineering Program Standards for Professional Behaviour',
   http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf

   AND

   'Use of the Engineering Computer Data Network Infrastructure',
   http://www.uvic.ca/engineering/current/services/computing/index.php

-------------------------------------------------------------------------
Software Engineering Program Computer Support Group                 sengsys@uvic.ca
tanujd@git.seng.uvic.ca's password:
Enumerating objects: 60, done.
Counting objects: 100% (60/60), done.
Delta compression using up to 20 thread
Compressing objects: 100% (57/57), done.
Writing objects: 100% (58/58), 10.66 KiB | 1.18 MiB/s, done.
Total 58 (delta 42), reused 0 (delta 0), pack-reused 0
To ssh://git.seng.uvic.ca/seng265/tanujd
   7606304..47265bf  master -> master
```