

# Python Logging Cheat Sheet

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## What is Logging?

Logging = recording events in your program. Unlike `print()`, logging: - Can go to **files**, **console**, or external systems. - Uses **levels** to categorize importance. - Supports **timestamps & formatting**.

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## Logging Levels

1. **DEBUG** → Detailed diagnostic info (developer-focused).
  2. **INFO** → Confirmation things work as expected.
  3. **WARNING** → Something unexpected happened, but program still runs.
  4. **ERROR** → A problem occurred, program failed at something.
  5. **CRITICAL** → Serious error, program may not continue.
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## Basic Usage

```
import logging

logging.basicConfig(
    level=logging.DEBUG,    # minimum level captured
    format="%(asctime)s - %(levelname)s - %(message)s"
)

logging.debug("Debugging details")
logging.info("General information")
logging.warning("This is a warning")
logging.error("An error occurred")
logging.critical("Critical problem!")
```

 Output Example:

```
2025-08-22 23:21:55 - DEBUG - Debugging details
2025-08-22 23:21:55 - INFO - General information
2025-08-22 23:21:55 - WARNING - This is a warning
2025-08-22 23:21:55 - ERROR - An error occurred
2025-08-22 23:21:55 - CRITICAL - Critical problem!
```

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## Logging to a File






```
import logging

logging.basicConfig(
    filename="app.log",
    filemode="a",  # "a" = append, "w" = overwrite
    level=logging.INFO,
    format="%(asctime)s - %(levelname)s - %(message)s"
)

logging.info("App started")
logging.warning("Low disk space")
logging.error("Something went wrong!")
```

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## Best Practices

-  Prefer `logging` over `print()` in production code.
-  Use the right **level** for each message.
-  Save logs to files for analysis.
-  Use **separate loggers** for modules in large projects.
-  Rotate logs with `logging.handlers.RotatingFileHandler` to avoid huge files.

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 Pro Tip: Start with `INFO` in production, use `DEBUG` during development.