Background Tasks and Services

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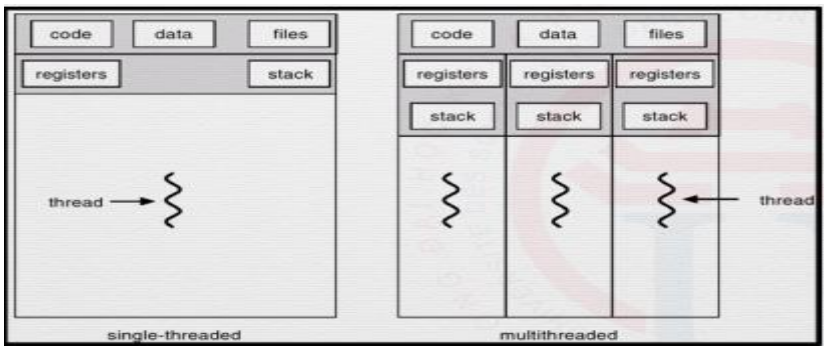
I. Chapter objectives

- Have basic understanding about background tasks and services.
- In this chapter, we study about threading by answer these questions: What is a thread? Why thread? Threads vs applications.

II. Background Task and Service

1. Threading

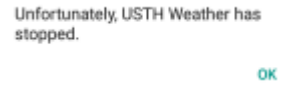
- Types:
  - Description: Single-threaded vs multithreaded
  - Example:



- Why thread?

Pros	Cons
• Better CPU utilization • Separation of tasks • Responsiveness	• Complication • Synchronization • Thread pool. . .

- Android Thread Model

Main thread	Worker threads
- Description: • Drawing widgets • Dispatching user inputs • Widget toolkit not thread-safe • Don’ t slow things on main thread - Example: Calculation like image processing may cause the apps not responding. 	- Description: • Don’ t manipulate Views on worker thread • Crash  - Example: Create new worker thread 

- Handler
  - Description:
    - A way to communicate with main thread
    - **Handler.handleMessage()** is executed on main thread
    - **Handler.sendMessage()** is called in worker thread
  - Example: The process: