Background Tasks and Services

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20 Nov 2016

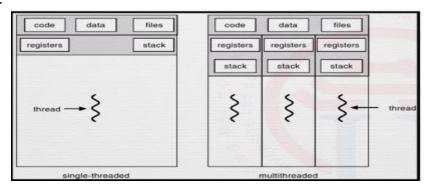
I. Chapter objectives

- 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

- <u>Types</u>:
 - o <u>Description</u>: Single-threaded vs multithreaded
 - o Example:



• Why thread?

<u>Pros</u>	<u>Cons</u>
• Better CPU utilization	• Complication
• Separation of tasks	• Synchronization
• Responsiveness	• Thread pool

• Android Thread Model

Main thread Worker threads - <u>Descrip</u>tion: - Description: Drawing widgets • Don't manipulate Views on worker thread Dispatching user inputs Widget toolkit not thread-safe Crash Don't slow things on main Unfortunately, USTH Weather has stopped. thread - <u>Example:</u> Calculation like image processing may cause the apps not - Example: Create new worker thread responding. public class WeatherActivity extends Activity { USTH Weather isn't responding. public void onCreate(Bundle savedInstanceState) { Thread t = new Thread(new Runnable() { Do you want to close it? @Override public void run() { WAIT // do something heavy in the new thread // don't access UI Views here. 3): t.start();

o 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:

