**A Library Catalog for a Multilingual Community**

The public library in Queens, New York (a part of New York City) has users who know one or more of at least 59 languages (<http://www.nytimes.com/2012/01/03/nyregion/queens-libraries-serve-59-languages.html?_r=0>). Design a search system that will allow people to find materials in the catalog.

**Internet Search for Children**

Children just don’t search in the same way adults do – their knowledge of the language is not as well developed, their cognitive process is not as well developed, and for younger kids their hand-eye coordination process is not as well developed. Moreover, there are social expectations that certain kinds of materials should not be made available to Children (see, for example, <https://en.wikipedia.org/wiki/Children%27s_Internet_Protection_Act>). Design a search engine that children ages 5-10 will be able to use to find age-appropriate materials on the Internet.

**A Search Engine for Illiterate Users**

People who don’t know how to read and write nevertheless need information. People need to know when, where and how to get services from businesses and government. Farmers need climate and weather forecasts. People need different kinds of health information, often quite urgently. About half a billion people who are functionally illiterate have access to a mobile phone of some sort (sometimes one that they have borrowed temporarily, <http://dl.acm.org/citation.cfm?id=1498765.1498776>). Design a search engine for them.

**Search by Driving Around**

Research has shown that the use of devices such as mobile phones and GPS navigation while driving can be dangerous, even when those devices are designed to be used hands-free, because they divert the driver’s attention (<http://www.nsc.org/learn/NSC-Initiatives/Pages/distracted-driving-hands-free-is-not-risk-free-infographic.aspx>). Interestingly, listening to the radio does not seem to cause similar problems to anywhere near the same degree. So if we are going to design a search engine for use while driving we will want it to work more like listening to the radio than like using Siri. One way to do that is to have the search engine work automatically, guessing what the driver will want to know based on where they have driven, where other people have driven, things they have done (made calls, searched for what time a shop closed, etc.), things other people have done, and some simple control actions (that are as simple as possible). Design that search engine.

**Searching the Past**

Much of what we know about ancient civilizations comes from the use of cuneiform to write on monuments and on clay tablets. Images of essentially all of the cuneiform script that has ever been discovered are now available for use by scholars (<http://cdli.ucla.edu/>). Design a search engine that scholars can use to find cuneiform that is describing certain people, organizations, or activities that they are investigating in their research.