# Introduction to MITRE ASKEM-BDF Use Case Exercise Materials

Hello! This folder contains use case exercises developed by MITRE in support of the DARPA ASKEM program*. To date, we have developed four use case exercises that we are sharing with all ARPA-H BDF participants. The first three were originally shared with the BDF program in Slack in July 2024.

- **Use case exercise 1: *Metadata extraction, standardization, and integration*.**

  Build tools to semi-automatically extract patient case metadata from supplemental materials from 11 papers and create a harmonized dataset in the Genomics Data Commons (GDC) data format. Includes links to source datasets and a manually prepared harmonized dataset to compare against.

- **Use case exercise 2: *Finding patient case, 'omics, and image data.***

  Build low or no-code tools to semi-automatically find patient cases matching criteria, locate data files, extract data elements, and find descriptions of methods in Cancer Research Data Commons (CRDC) repositories, other data resources, and published papers. Includes specific search tasks with some manually prepared results to compare against.

- **Use case exercise 3: *Interpreting and explaining 'omics results*.**

  Build tools to semi-automatically identify significant results in the given dataset, provide relevant contextual information, and generate explanations and hypotheses using scientific knowledge from papers and databases. Includes questions to answer and a small number of statements about context and hypotheses from the source paper to compare against.

- **Use case exercise 4: *Fulfilling researcher data requests.***

  Build low/no-code tools to enable biomedical researchers to easily 1) find and retrieve data from public data repositories 2) find and retrieve data from papers and their supplementary materials and 3) integrate and harmonize data from multiple sources. Includes a set of data request statements based on real researcher uses of Cancer Research Data Commons (CRDC) repository datasets; sets of query and answer pairs for assessing tools during development; data sets for harmonization; and illustrations of repository searches with currently available tools.

We are happy to answer questions and hear your feedback! Contacts: Tonia Korves, tkorves@mitre.org and Pam Bhattacharya, nbhattacharya@mitre.org

*MITRE, a not-for-profit company that operates federally funded R&D centers on behalf of U.S. government sponsors. We are supporting the DARPA ASKEM program, which has a group of performers participating in the ARPA-H BDF program. We are developing use case exercises and materials to drive exploratory research and development to address BDF program goals.