System Requirements Specifications		
Group No. 5	**Keyword search for research papers**	
Sr No.	**Description**	**mandatory/optional**
Functional Requirements		
KS01	Conference invites research papers from researchers. Sample research papers are as shown in subsequent sheets – Research Paper 1 and Research Paper 2	mandatory
KS02	Research papers are available in multiple text files, these filenames will be passed to application as command line arguments.	mandatory
KS03	Format of Research paper files - Project ID-<project id> Project Title-<project title> Keyword-<keyword1> Keyword-<keyword2> Keyword-<keyword3>... Abstract-<abstract> Author-<author 1> Author-<author 2> Author-<author 3>… References-Book=<book name> References-Article=<article name> References-Chapter=<chapter name>	mandatory
KS04	Prepare list of unique keywords appearing all research papers.	mandatory
KS05	A keyword can appear in one or more research papers. For every keyword in list prepared as per “KS04” - Application has to prepare list of research papers “Project ID”s in which keyword appears.	mandatory

KS06	At the end, for each keyword- display project ID, project name in which that keyword appears	mandatory
KS07	Write output specified in “KS06” into file named “keywordProjects.txt”	mandatory
KS08	Research papers which are not in format specified in “KS03”, project ID and project Name should be written in file invalidProjects.txt. Display error messages and discards such projects.	mandatory
Technical Requirements		
KS-TR01	C programming language	mandatory
KS-TR02	Use multi-threading. Use POSIX-tthread library. Access to shared resources to be synchronized. Use 1 mutex per keyword. Create threads to process multiple input files.	mandatory
KS-TR03	Use file input/output operations to read research paper data and write output specified in “KS05” into file.	mandatory
KS-TR04	Use suitable data structure to read research paper data and to store output specified in “KS05”.	mandatory
KS-TR05	Use dynamic memory allocation.	mandatory
Non Functional Requirements		
KS-NR01	Multi-file multi-directory solution is expected. Modular and maintainable code (comments) and all coding standards should be followed.	mandatory
KS-NR02	makefile to build application. Two-step compilation process - .o and then executable should be generated.	mandatory
KS-NR03	Use valgrind tool on application executable to detect memory leak. Final valgrind report to be submitted in “reports” directory.	mandatory
KS-NR04	Level 0 DFD (context diagram), Level 1 DFD, Flow diagram and pseudocode for 2 complex functions logic.	mandatory
KS-NR05	Use Cunit to automate unit testing. At least 1 or 2 testcases using Cunit. Other testcases can be tested manually.	mandatory
KS-NR06	Integrated HLD document of the system	optional

KS-NR07	RTM, Plan, Presentation	mandatory
KS-NR08	Unit test cases and Integration test cases in UT_IT document. Both types of test cases i.e. sunny and rainy should be present in this document	mandatory