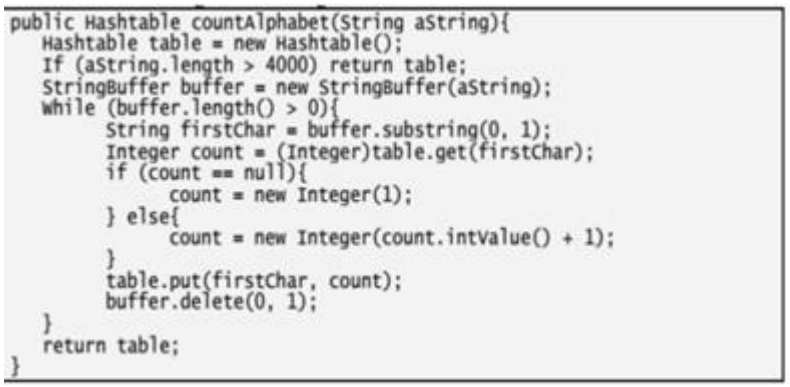
Shree Swami Atmanand Saraswati Institute of Technology

B.E. III (COMPUTER) SEM V

Subject Name: Software Engineering (3150711)

LIST OF PRACTICALS	
For Assigned mentioned systems as a mini-project (in group of two students) to prepare Software documents mentioned as Assignment 1 to 3 and 7 and implementation in JAVA/any programming language. **Defined Projects:** **1) College management system** **2) Library management system** **Assignment 1: Study Software Development Life Cycle (SDLC)** Study the complete SDLC and analyse various activities conducted as a Part of various phases. For each SDLC phase, identify the objectives and summaries outcomes. Choose appropriate Software Life Cycle model for your application. **Assignment 2: Study Software Requirement Phase** Consider any project to be developed in any technology as a Software Architect or Project Manager. Construct Software Requirement Specification (SRS) document for the project. **Assignment 3: Design Analysis** **UML diagrams** Study and write a note on of following UML diagrams and draw each diagram for your system. **Behaviour Diagram** 1. Use case diagram 2. Activity diagram 3. Sequence diagram 4. State diagram **Structure Diagrams** 5. Class diagram **DFD (Data Flow Diagram)** Write a short note on DFD with data dictionary and draw Context diagram, level 1 and level 2 for your system.	
Assignment 4: Study Software Project Management Considering your immense expertise in software development, The Absolute Beginners Inc. has recently Allotted you a mega project. The goal of the project is to create a database of all Hindi films released since 2000. The software would allow one to generate a list of top ten hit films, top ten flop films, and best comedy Films, and so on. Using your prior experience, you have decided the approximate sizes of each module of the Software as follow: • Data entry (0.9 KDSI) • Data update (0.7 KDSI) • Query (0.9 KDSI) • Report generation and display (2 KDSI) Also take into consideration the following cost drivers with their ratings: • Storage constraints (Low) • Experience in developing similar software (High)	

• Programming capabilities of the developers (High) • Application of software engineering methods (High) • Use of software tools (High) (All other cost drivers have nominal rating). Now answer the following: Solve the problem by Applying Basic and intermediate COCOMO 1. Find Project Type? 2. Find Project Size? 3. Find Initial Effort Estimation? 4. Find Adjusted Effort Estimation? 5. Find schedule? 6. Find minimum size of the team you would require to develop this system? Assuming that your client would pay Rs. 50,000 per month of development, how much would be the Likely billing?	
Assignment 5: Study of Function Point (FP) Oriented Estimation model Explain FP and analyse your project using FP oriented estimation model. **Assignment 6: Consider the following Java code segment:**  1. that all independent execution path is exercised at least once; 2. Guarantees that both the true and false side of all logical decisions are exercised; 3. Executes the loop at the boundary values and within the boundaries. Sketch out Design control flow diagram and Apply Cyclomatric complexity for given Code. Identify Numbers of Independence path require for testing. **Assignment 7: Testing** Create a test plan document for your system.	
Assignment 8: Study of any any two Open source tools in DevOps for Infrastructure Automation, Configuration Management, Deployment Automation, Performance Management, Log Management. Monitoring. (Behat , Watir, Chef, Supergiant, SaltStack, Docker, Hudson etc)	

```
public Hashtable countAlphabet(String aString){
   Hashtable table = new Hashtable();
   If (aString.length > 4000) return table;
   StringBuffer buffer = new StringBuffer(aString);
   while (buffer.length() > 0){
         String firstChar = buffer.substring(0, 1);
         Integer count = (Integer)table.get(firstChar);
         if (count == null){
               count = new Integer(1);
         } else{
               count = new Integer(count.intValue() + 1);
         }
         table.put(firstChar, count);
         buffer.delete(0, 1);
   }
   return table;
}
```

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