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| Faculty of Engineering and Technology | | | |
| Ramaiah University of Applied Sciences | | | |
| Department | Computer Science and Engineering | Programme | B. Tech |
| Semester/Batch | 03/2017 | | |
| Course Code | CSC202A | Course Title | Data structure and Algorithms |
| Course Leader | Vaishali R Kulkarni and Dr Pushphavathi T P | | |

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| Assignment - 01 | | | | | | | | | | | | |
| Register No | | |  | | | Name of Student | | | |  | | |
| Sections |  | Marking Scheme | | | | | | Marks | | | | |
| Max Marks | | | First Examiner Marks | Moderator Marks |
| Part-A |  | | | | | | | | | | | |
| A 1.1 | Introduction to data structures | | | | | | 01 | | |  |  |
| A 1.2 | Efficient information retrieval techniques | | | | | | 02 | | |  |  |
| A 1.3 | A real life example of data structure for massive data storage | | | | | | 02 | | |  |  |
|  | **Part-A Max Marks** | | | | | | **05** | | |  |  |
| Part B 1 |  | | | | | | | | | | | |
| B 1.1 | **B1** Introduction to substitution ciphers | | | | | | 01 | | |  |  |
| B 1.2 | A Algorithm | | | | | | 02 | | |  |  |
| B 1.3 | Jus Justification of data structures used in the solution | | | | | | 04 | | |  |  |
| B 1.4 | C Program | | | | | | 03 | | |  |  |
|  | **Part-B 1 Max Marks** | | | | | | **10** | | |  |  |
| Part B 3 |  | | | | | | | | | | | |
| B3.1 | Plagiarism rules and threshold | | | | | | 02 | | |  |  |
| B3.2 | Pseudocode for checking plagiarized content | | | | | | 03 | | |  |  |
| B3.3 | C Program | | | | | | 03 | | |  |  |
| B3.4 | Conclusion and future scope | | | | | | 02 | | |  |  |
|  | **Part-B 3 Max Marks** | | | | | | **10** | | |  |  |
|  | **Total Assignment Marks** | | | | | | | **25** | | |  |  |
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| **Course Marks Tabulation** | | | | | | | | | | | | | |
| **Component- CET B Assignment** | | | | **First Examiner** | **Remarks** | | **Second Examiner** | | **Remarks** | | | | |
| A | | | |  |  | |  | |  | | | | |
| B.1 | | | |  |  | |  | |  | | | | |
| B.2 | | | |  |  | |  | |  | | | | |
| **Marks (Max 25)** | | | |  |  | |  | |  | | | | |
| Signature of First Examiner Signature of Second Examiner | | | | | | | | | | | | | |

**Please note:**

1. Documental evidence for all the components/parts of the assessment such as the reports, photographs, laboratory exam / tool tests are required to be attached to the assignment report in a proper order.
2. The First Examiner is required to mark the comments in RED ink and the Second Examiner’s comments should be in GREEN ink.
3. The marks for all the questions of the assignment have to be written only in the **Component – CET B: Assignment** table.
4. If the variation between the marks awarded by the first examiner and the second examiner lies within +/- 3 marks, then the marks allotted by the first examiner is considered to be final. If the variation is more than +/- 3 marks then both the examiners should resolve the issue in consultation with the Chairman BoE.

**Assignment**

**Term -** **1**

**Instructions to students:**

1. The assignment consists of **3** questions: Part A – **1** Question, Part B- **2** Questions.
2. Maximum marks is **50**.
3. The assignment has to be neatly word processed as per the prescribed format.
4. The maximum number of pages should be restricted to **20**.
5. Restrict your report for Part-A to 3 pages only.
6. Restrict your report for Part-B to a maximum of 17 pages.
7. The printed assignment must be submitted to the course leader.
8. **Submission Date: / /2018**
9. **Submission after the due date is not permitted.**
10. **IMPORTANT**: It is essential that all the sources used in preparation of the assignment must be suitably referenced in the text.
11. Marks will be awarded only to the sections and subsections clearly indicated as per the problem statement/exercise/question

**Preamble:**

This course is aimed at preparing the students to understand and apply the principles of data structures and algorithms, implement standard data structures and develop algorithms for efficient computer programs. A broad range of abstract data types as well as algorithms for data storage, access and manipulation used in program development are taught. Students are trained to develop applications using appropriate ADTs and algorithms, analyze them and generate an analytical report.

**PART – A 5 Marks**

Data structureis a systematic way of organizing and accessing data. Data structures are used in collecting and storing massive collections of data. Data structures help in making data available using operations such as indexing, searching, sorting etc. It assists the computer to understand a human-generated documents and artifacts of all kinds such as speech, video, text, motion, biometrics etc. With this reference, write an essay on:

**Data structures and information retrieval techniques for natural-language processing**

The essay should address the following:

**A1.1** Introduction to data structures

**A1.3** Efficient information retrieval techniques

**A1.4** A real life example of data structure for massive data storage

**PART – B (20 marks)**

**B.1 10 marks**

Encryption is used to keep the data secret. In an encryption process, a file or data transmission is garbled so that only authorized people with a secret key can unlock the original text. Consider the use of encryption for the purpose of security in net banking or in a credit card (either by swiping, inserting or tapping). Design an encryption software that uses substitution cipher techniques to provide confidentiality and authentication for e-transactions. Your report should include

**B1**.**1** Introduction to substitution ciphers

**B1.2** Algorithm

**B1.3** Justification of data structures used in the solution

**B1.**4 C Program

**B.2 10 marks**

Plagiarism is a serious problem in research ethics. Implement a simple plagiarism detector. Accept a corpus of existing documents and a potentially plagiarized document. Develop an algorithm that performs the plagiarism check and determines the copied text and its sources. Your report should include the following:

B2.1 Plagiarism rules and threshold

B2.2 Pseudocode for checking plagiarized content

B2.3 C Program

B2.4 Conclusion and future scope

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