



VidyaJyothi Institute of Technology

(Approved by AICTE, New Delhi, Accredited by NAAC, NBA, Permanently Affiliated to JNTUH, Hyderabad)

An Autonomous Institution

Department of Computer Science and Engineering

Faculty Name: B.Sailaja

Academic Year:2020-21

Year: II Year

Sub:DataStructures

- Canvas LMS from Instructure is a cloud-based learning management system (LMS)
- It is a course management system that supports online learning and teaching
- It is an open-sourced cloud-based application designed to empower both teachers and students by making an engaging learning environment available to them.
- Canvas tools **enhance teaching power and the student's learning experience**, saving more time and effort and allowing greater focus on other priorities
- Canvas LMS offers **easy-to-use and customizable teaching and learning experience**.
- Canvas LMS is an **excellent tool to organize learning**. It is based on three main components, including a Dashboard, a high-level overview of top courses, and a Global navigation menu that provides access to the main features of the LMS.
- Canvas Common is another main highlight of the platform. It is a learning object repository where educators can **supplement their classes with quizzes, modules, and courses**. They can create discussions and documents in the repository. This feature provides educators with a fast track to course creation. Commons can also be used as a platform to share content within an institution.
- The best highlight of Canvas LMS is its Modules feature. This feature helps organize course content into units. Educators can stipulate prerequisites for modules in sequence. Students don't see a course or unit until they unlock their prerequisites.
- Quiz Feature helps educators to **take a quiz or assign an exam** to any student if they require it at any place. Quizzes can be graded or ungraded, time-constraints, or self-paced, with long descriptive answers or multiple choices with true or false, etc.
- Gradebook is a feature that helps educators and administrators to grade students based on their assignments. The Grades can be imported or exported manually as well as automatically in a CSV file through Student Information System integration.
 - ❖ I created **a course on Data Structures in semester 1**
 - ❖ I have added all **60+ students to the course**
 - ❖ In each course modules are created for unit wise. In each module I have added notes, ppts, Videos of online classes, other reference videos.
 - ❖ I conducted quiz and graded the students.
 - ❖ I given assignments and assignments are graded to the point 10.

Home Page of DataStructure Course in Canvas

In Introductory module I included syllabus, timetable, lecture plan, CO-PO etc

The screenshot shows the Canvas LMS interface for the 'Data Structures' course. The left sidebar contains navigation links: Home, Announcements, Assignments, Discussions, Grades, People, Pages, Files, Syllabus, Outcomes, Rubrics, Quizzes, Modules, and BigBlueButton (Conferences). The main content area displays the 'Introductory Module' with a list of documents: DS CO-PO.docx, DS Syllabus & Prerequisites.docx, Timetable.docx, DS Lecture Plan .docx, Previous Question Papers.docx, and Unit Wise Questions.docx. The right sidebar includes buttons for 'Import Existing Content', 'Import from Commons', 'Choose Home Page', 'View Course Stream', 'New Announcement', 'New Analytics', and 'View Course Notifications'. Below these is a 'To Do' section with tasks like 'Grade Assignment-1 Program for Single Linked List' and 'Grade Quiz-2'. The bottom of the screen shows a Windows taskbar with various application icons and a system clock indicating 3:02 PM on 9/24/2021.

Modules in the course

The screenshot shows the 'Modules' page in the Canvas LMS for the 'Data Structures' course. The left sidebar is the same as the previous screenshot. The main content area displays the 'Introduction to Data Structures' module with a list of items: Recorded videos, Data Structures Introduction and Linked list.pptx, Assignment-1 Program for Single Linked List (10 pts), Assignment-2 Program to Double linked list (10 pts), and Quiz-1 (Aug 15, 2020 | 10 pts). Below this is the 'Stacks' section, which lists 'Prerequisites: Introduction to Data Structures'. The right sidebar shows a 'To Do' section with tasks like 'Grade Assignment-1 Postfix Evaluation' and 'Grade Assignment 8- Queue'. Below this is a 'Coming Up' section with a 'View Calendar' button. The bottom of the screen shows a Windows taskbar with various application icons and a system clock indicating 3:12 PM on 25-Sep-21.

List of Students added to the course

canvas.instructure.com/courses/2251349/users

3 invitations haven't been accepted. [Resend](#)

Name	Login ID	SIS ID	Section	Role	Last Activity	Total Activity
5A1 Pavan kumar	pavan200235@gmail.com		Data Sturctures	Student	Sep 7, 2020 at 7:44am	27:46
5A4 Bala Aswitha (She/Her)	balaaswitha@gmail.com		Data Sturctures	Student	Jul 4 at 11:21am	01:55:28
5A7 Rental Balraj (He/Him)	rentalabalraj@gmail.com		Data Sturctures	Student	Jun 4 at 7:35pm	02:00:22
5A8-R.Rishitha (She/Her)	rishitha.rikkala@gmail.com		Data Sturctures	Student	Feb 4 at 6:02pm	03:51:40
5B3 Syed Muziba (She/Her)	lamaximusmuziba@gmail.com		Data Sturctures	Student	Dec 12, 2020 at 8:30pm	38:50
GOUTHAMI 5B4	gautamithakur23@gmail.com		Data Sturctures	Student	Aug 17 at 8:50pm	02:39:26
5B6-T.Manasa (She/Her)	teenathopugonda@gmail.com		Data Sturctures	Student	Sep 23, 2020 at 10:54am	01:49:36
5B7-V.Sai Siddharth	vsaisidvirat18@gmail.com		Data Sturctures	Student	Jan 5 at 10:33am	01:39:19
5B8-Varshitha	vennavarshitha@gmail.com		Data Sturctures	Student	Feb 28 at 9:53am	02:30:21

Attendance of the Students

canvas.instructure.com/courses/2251349/external_tools/90097

Data Structures > Data Sturctures

Roll Call

LIST CLASS

Data Sturctures

MARK ALL PRESENT UNMARK ALL

566 Deekshika Data Sturctures	MORE
571-Ch.Vijay Prasad Data Sturctures	MORE
573- D.Shravani Data Sturctures	MORE
574 - D.Naga Sai Nitish Data Sturctures	MORE
575-AKASH Data Sturctures	MORE
577-Neha Reddy Data Sturctures	MORE
579 - G.Charith Reddy Data Sturctures	MORE
586-K.Venkatesh	MORE

One of Unit PPT

The screenshot shows a web browser window with the Canvas LMS interface. The top navigation bar includes links for Home, Announcements, Assignments, Discussions, Grades, People, Pages, Files, Syllabus, Outcomes, Rubrics, Quizzes, Modules, BigBlueButton (Conferences), and Collaborations. The main content area displays a PowerPoint presentation titled "DS-Unit-4.ppt" with a download link "Download DS-Unit-4.ppt (1.62 MB)". The presentation is on slide 2 of 34, titled "Graphs". The slide content is as follows:

- Basic Terminology
- Representation of Graphs
- Graph Traversals
 - DFS and BFS
- Spanning Trees
- Prims Algorithm
- Kruskals Algorithm

The Windows taskbar at the bottom shows the system clock as 3:05 PM on 9/24/2021.

Assignment Given to the Students

The screenshot shows a web browser window with the Canvas LMS interface. The top navigation bar includes links for Home, Announcements, Assignments, Discussions, Grades, People, Pages, Files, Syllabus, Outcomes, Rubrics, Quizzes, Modules, BigBlueButton (Conferences), and Collaborations. The main content area displays an assignment titled "Assignment-5 Convert Infix to Postfix and Prefix expressions" with a status of "Published". The assignment instructions are as follows:

Convert the Following infix Expression to Post fix and Prefix expression using Stack

1. $(A + B) * (C + D)$
2. $(A - B/C) * (A/K-L)$
3. $(1+4/2*1+2)*3/2$
4. $9*(12+4)/5*6$
5. $(a*b/c)-(d^e+f)$

Take the screenshots of the solutions, save in one file and upload

The assignment is worth 10 points and is submitted as a file upload. The Windows taskbar at the bottom shows the system clock as 3:06 PM on 9/24/2021.

Sample Assignment submitted by student

DS Assignment
P. Bala Arwin
CSE-B
17911A05A4

1. Convert the following infix expressions to postfix expressions

(i) $(A+B) * (C+D)$

Symbol	stack	postfix expression
((

Submitted: Aug 19, 2020 at 12:44pm
Student Viewed Document: Sep 20, 2020 at 7:06pm
Submitted Files: (click to load)
[5A4 ds assignment.pdf](#)

Assessment
Grade out of 10
10

Assignment Comments
0

Assignments Graded

Student Name	Assignment-1 Pro... Out of 10	Assignment-2 Pro... Out of 10	Quiz-1 Out of 10	Assignment-3 Pro... Out of 10	Assignment-4 Pro... Out of 10	Assignment-5 Pro... Out of 10
5B3 Syed Muziba	9	10	6	9	10	
GOUTHAMI 5B4	9	10	10	10	10	
5B6-T.Manasa	8	9	8	10	10	
5B7-V.Sai Siddharth	9	10	9	10	10	
5B8-Varshitha	10	10	5	10	9	
5B9 Sai Pranav Y	7	10	9	9	-	
566 Deekshika	7	10	10	10	10	
571-Ch.Vijay Prasad	10	10	9	9	10	
573- D.Shravani	10	10	10	9	10	
574 - D.Naga Sai Nitish	10	10	8	9	10	
575-AKASH	10	10	8	9		
577-Neha Reddy	8	10	10	10		
579 - G.Charith Reddy						

Quiz Conducted to the Students

The screenshot shows the Canvas LMS interface for a quiz titled "Quiz-1". The left sidebar contains navigation links: Assignments, Discussions, Grades, People, Pages, Files, Syllabus, Outcomes, Rubrics, Quizzes (selected), Modules, BigBlueButton (Conferences), Collaborations, Attendance, New Analytics, and Settings. The main content area displays the quiz settings for "Quiz-1" on the topic "On Introduction to Data Structures and Linked list". The settings include: Quiz Type: Graded Quiz; Points: 10; Assignment Group: Assignments; Shuffle Answers: Yes; Time Limit: 15 Minutes; Multiple Attempts: No; View Responses: Always; Show Correct Answers: After Aug 15, 2020 at 5am; One Question at a Time: No. On the right, there are options to "Moderate This Quiz" and "SpeedGrader™". The Windows taskbar at the bottom shows the search bar, task view button, and several open applications including Chrome, File Explorer, and the Start menu.

Quiz-1

On Introduction to Data Structures and Linked list

Quiz Type Graded Quiz

Points 10

Assignment Group Assignments

Shuffle Answers Yes

Time Limit 15 Minutes

Multiple Attempts No

View Responses Always

Show Correct Answers After Aug 15, 2020 at 5am

One Question at a Time No

Moderate This Quiz

SpeedGrader™

Activate Windows
Go to Settings to activate Windows.

Quiz Paper

The screenshot shows the Canvas LMS interface for the "Quiz-1" preview page. The left sidebar is the same as the previous screenshot, with "Quizzes" selected. The main content area displays the quiz preview for "Quiz-1" on the topic "On Introduction to Data Structures and Linked list". It includes a warning message: "This is a preview of the published version of the quiz". Below this, it shows the start time: "Started: Sep 24 at 3:10pm". The "Quiz Instructions" section repeats the topic. A sample question is shown: "Question 1" (1 pts) asking "Array is a _____ data structure" with multiple choice options: None, Linear, unsequential, and Nonlinear. On the right, there is a "Keep Editing This Quiz" button and a list of questions (Question 1 through Question 8). Below the list, it shows "Time Running: Hide" and "Attempt due: Aug 15, 2020 at 11:59pm" with a remaining time of "14 Minutes, 53 Seconds". The Windows taskbar at the bottom is identical to the previous screenshot.

Quiz-1

On Introduction to Data Structures and Linked list

This is a preview of the published version of the quiz

Started: Sep 24 at 3:10pm

Quiz Instructions

On Introduction to Data Structures and Linked list

Question 1 1 pts

Array is a _____ data structure

☐ None

☐ Linear

☐ unsequential

☐ Nonlinear

Keep Editing This Quiz

Questions

- Question 1
- Question 2
- Question 3
- Question 4
- Question 5
- Question 6
- Question 7
- Question 8

Time Running: [Hide](#)

Attempt due: Aug 15, 2020 at 11:59pm

14 Minutes, 53 Seconds

Activate Windows
Go to Settings to activate Windows.

Binary tree and types, Representations

drive.google.com/file/d/1p5wWdZz6wr218dK86NhEb-A1t-AOJCgr/view

Sailaja DS Class (2020-08-25 at 22:27 GMT-7)

In - Order Traversal (leftChild - root - rightChild)

Algorithm inorder(tree)

- 1. Traverse the left subtree, i.e., call Inorder(left-subtree)
- 2. Visit the root.
- 3. Traverse the right subtree, i.e., call Inorder(right-subtree)

In-Order Traversal for binary tree is
I - D - J - B - F - A - G - K - C - H

6:54 / 47:38

Activate Windows
Go to PC settings to activate Windows.

Other videos for students reference

Types of Expressions

canvas.instructure.com/courses/2251349/modules/items/37105570

Data Structures > Modules > Self Study Materials > Types of Expressions

3.4 Infix Prefix and Postfix expressions | Data structures

Types of Expressions

Polish notation

Prefix: (Reverse Polish notation)

Postfix: (Reverse Polish notation)

Watch on YouTube

Activate Windows
Go to PC settings to activate Windows.

Previous Question Papers for students Reference

Vidya Jyothi Institute of Technology (Autonomous)
 (Recognized by AICTE, Approved by UGC, New Delhi, Permitted to Affiliated to JNTU, Hyderabad)
 2nd Year B.Tech Ist Sem 2nd Mid EXAM

BRANCH: CSE & IT
 SUB: Data Structures
 Date: 31.10.2017

Duration: 90 Min
 Marks: 20
 Session: FN

ANSWER ALL THE QUESTIONS

PART - A 3Q*2M = 6 Marks

1. Define balance factor and what is the balance factor of an AVL tree?
2. List the properties of a spanning tree.
3. Define probe in hashing.

PART - B 14 Marks

ANSWER ALL THE QUESTIONS

4. a) Construct AVL Tree with the following elements C, O, M, P, U, T, I, N, G and remove the elements P, U and T. [5M]
 [OR]
 b) i. Discuss the properties of Red-Black trees with an example. [4M]
 ii. List the applications of the trees. [1M]
5. a) i. Define Graph and represent the graph using adjacency matrix. [2M]
 ii. Define Minimum Spanning tree. Explain Prim's Algorithm with example. [3M]
 [OR]
 b) i. Illustrate DFS traversals of following graph. [2M]

Unit wise important Questions

Unit Wise Questions.docx
 Download Unit Wise Questions.docx (98.6 KB)

Question	Level
UNIT-1	
Short Answer Questions:	
1. Define data structure.	1
2. List linear and nonlinear data structures.	1
3. List the operations performed in the Linear Data Structure.	1
4. Define abstract data type (ADT).	1
5. Define advantage of circular queues.	1
6. List types of Queues.	1
7. Define Queue?	1
8. Write a C-Program to check whether the given string is palindrome or not by using string handling functions.	3
9. Define Stack.	1
10. Define the term top?	1
11. Explain the overflow condition on stack?	2
12. Explain the term Underflow on stack?	2
13. List the applications of stack.	1
14. What is recursion?	1

Out come: Consistency of learning. Delivering course through an LMS keeps the content centralized so all the students have a single source of content, instructions and questions