



# K.R. MANGALAM UNIVERSITY

## THE COMPLETE WORLD OF EDUCATION

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Roll : 2501010100      Section : B

Course : Btech CSE

**Assignment Number 05:** Career Planning, Certifications & Industry Readiness

**Assignment Title:** *Design Your Career Roadmap with SMART Goals*

### Acknowledgement :

I would like to express my sincere gratitude to **Rajesh Kumar Sir** for his valuable guidance and support throughout the completion of this assignment. His clear explanations, encouragement, and structured approach to teaching greatly helped me understand the concepts and apply them effectively. The insights he provided—especially regarding career planning, technical readiness, and professional development—played a crucial role in shaping the quality of my work. I truly appreciate his dedication and the learning environment he creates, which motivates students like me to grow academically and professionally.

**Problem Definition :** Students often find it difficult to manage multiple study tasks and deadlines, which leads to procrastination and missed work. A **Study Planner with Task Reminder** helps solve this by organizing tasks, planning study schedules, sending timely alerts, and tracking progress.

The system offers four main functions:

### **1. Task Organization**

Let users add and manage study tasks like homework, projects, or exams with details such as due date, priority, and estimated time.

### **2. Scheduling**

Helps users assign tasks to specific daily or weekly time slots for better planning.

### **3. Reminders**

Sends alerts before deadlines or scheduled study sessions to keep the user on track.

### **4. Progress Tracking**

Allows marking tasks as completed and shows study progress over time.

## **❖ Algorithm : Pseudocode For Study Planner with Task Reminder**

START

CREATE an empty list called TASKS

REPEAT

DISPLAY menu:

1. Add New Task
2. View All Tasks
3. Mark Task as Completed
4. Check Reminders
5. Exit

INPUT user\_choice

IF user\_choice == 1 THEN

    INPUT task\_name

    INPUT task\_deadline (date/time)

    SET task\_status = "Pending"

    ADD {task\_name, task\_deadline, task\_status} to TASKS

    DISPLAY "Task Added Successfully"

ELSE IF user\_choice == 2 THEN

    IF TASKS list is empty THEN

        DISPLAY "No tasks available"

```

ELSE
    FOR each task in TASKS DO
        DISPLAY task_name, task_deadline, task_status
    END FOR
END IF

```

```

ELSE IF user_choice == 3 THEN
    INPUT task_number
    SET TASKS[task_number].status = "Completed"
    DISPLAY "Task Marked Completed"

```

```

ELSE IF user_choice == 4 THEN
    GET current_time

    FOR each task in TASKS DO
        IF task.status == "Pending" AND task.deadline == current_time THEN
            DISPLAY "Reminder: Task " + task_name + " is due now!"
        END IF
    END FOR

```

```

ELSE IF user_choice == 5 THEN
    DISPLAY "Exiting Program"
    BREAK

```

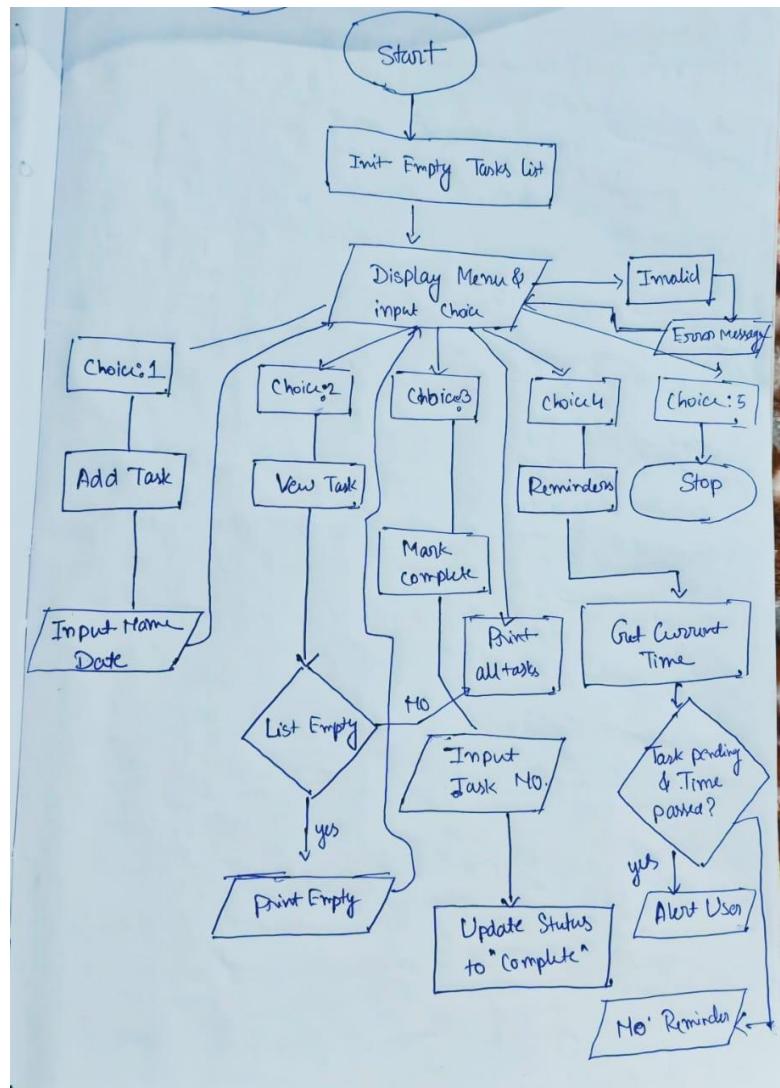
```

ELSE
    DISPLAY "Invalid choice"
END IF

```

```
UNTIL user_choice == 5
```

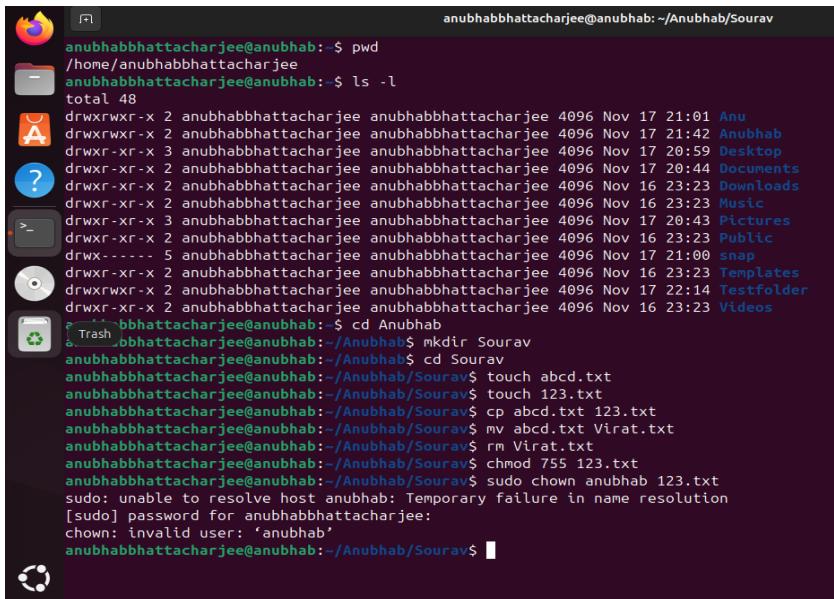
```
END
```



# ➤ Linux & Shell Scripting

## File Management

1. **ls** – Lists files and directories.
  - Syntax: ls -l
    - shows detailed info including permissions.
2. **cp** – Copies files or directories.
  - Syntax : cp file1.txt /home/user/
3. **mv** – Moves or renames files.
  - Syntax : mv oldname.txt newname.txt
4. **rm** – Removes files or directories.
  - Syntax : rm file.txt or rm -r folder/
5. **touch** – Creates an empty file or updates timestamps.
  - Syntax : touch newfile.txt
6. **mkdir** – Creates a new directory.
  - Syntax : mkdir projects
7. **rmdir** – Removes empty directories.
  - Syntax : rmdir olddir
8. **Cd** – Move into directory
  - Syntax : Cd foldername
9. **Chmod** – Change File permission
  - Syntax : Chmod 755 filename
10. **Chown** – Change file Ownership
  - Syntax : Chown user : group filename



```

anubabbhattacharjee@anubhab: ~/Anubhab/Sourav
anubabbhattacharjee@anubhab: $ pwd
/home/anubabbhattacharjee
anubabbhattacharjee@anubhab: $ ls -l
total 48
drwxrwxr-x 2 anubabbhattacharjee anubabbhattacharjee 4096 Nov 17 21:01 Anu
drwxrwxr-x 2 anubabbhattacharjee anubabbhattacharjee 4096 Nov 17 21:42 Anubhab
drwxr-xr-x 3 anubabbhattacharjee anubabbhattacharjee 4096 Nov 17 20:59 Desktop
drwxr-xr-x 2 anubabbhattacharjee anubabbhattacharjee 4096 Nov 17 20:44 Documents
drwxr-xr-x 2 anubabbhattacharjee anubabbhattacharjee 4096 Nov 16 23:23 Downloads
drwxr-xr-x 3 anubabbhattacharjee anubabbhattacharjee 4096 Nov 17 20:43 Music
drwxr-xr-x 2 anubabbhattacharjee anubabbhattacharjee 4096 Nov 16 23:23 Public
drwx----- 5 anubabbhattacharjee anubabbhattacharjee 4096 Nov 17 21:00 snap
drwxr-xr-x 2 anubabbhattacharjee anubabbhattacharjee 4096 Nov 16 23:23 Templates
drwxrwxr-x 2 anubabbhattacharjee anubabbhattacharjee 4096 Nov 17 22:14 Testfolder
drwxr-xr-x 2 anubabbhattacharjee anubabbhattacharjee 4096 Nov 16 23:23 Videos
anubabbhattacharjee@anubhab: $ cd Anubhab
anubabbhattacharjee@anubhab:~/Anubhab$ mkdir Sourav
anubabbhattacharjee@anubhab:~/Anubhab$ cd Sourav
anubabbhattacharjee@anubhab:~/Anubhab/Sourav$ touch abcd.txt
anubabbhattacharjee@anubhab:~/Anubhab/Sourav$ touch 123.txt
anubabbhattacharjee@anubhab:~/Anubhab/Sourav$ cp abcd.txt 123.txt
anubabbhattacharjee@anubhab:~/Anubhab/Sourav$ mv abcd.txt Virat.txt
anubabbhattacharjee@anubhab:~/Anubhab/Sourav$ rm Virat.txt
anubabbhattacharjee@anubhab:~/Anubhab/Sourav$ chmod 755 123.txt
anubabbhattacharjee@anubhab:~/Anubhab/Sourav$ sudo chown anubhab 123.txt
sudo: unable to resolve host anubhab: Temporary failure in name resolution
[sudo] password for anubabbhattacharjee:
chown: invalid user: 'anubhab'
anubabbhattacharjee@anubhab:~/Anubhab/Sourav$ 

```

## Bash Script.sh

```

#!/bin/bash

echo "Creating Career Folder Structure..."

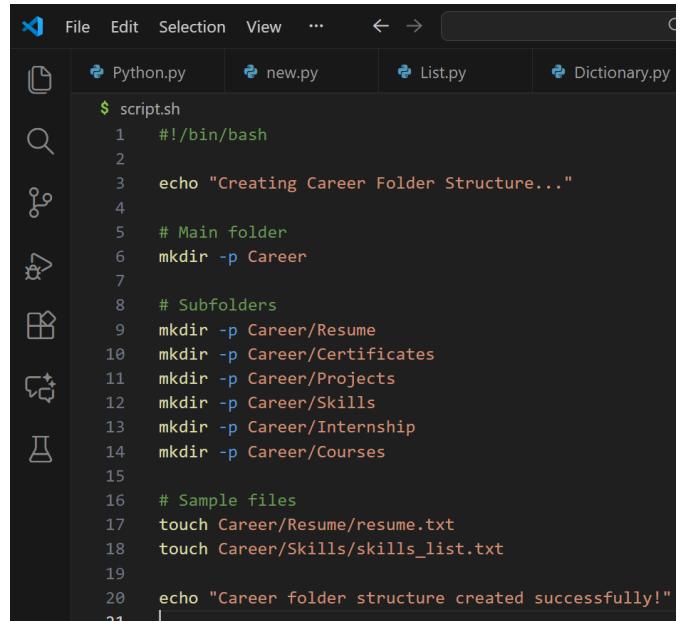
# Main folder
mkdir -p Career

# Subfolders
mkdir -p Career/Resume
mkdir -p Career/Certificates
mkdir -p Career/Projects
mkdir -p Career/Skills
mkdir -p Career/Internship
mkdir -p Career/Courses

# Sample files
touch Career/Resume/resume.txt
touch Career/Skills/skills_list.txt

echo "Career folder structure created successfully!"

```



```

Python.py new.py List.py Dictionary.py
$ script.sh
1  #!/bin/bash
2
3  echo "Creating Career Folder Structure..."
4
5  # Main folder
6  mkdir -p Career
7
8  # Subfolders
9  mkdir -p Career/Resume
10 mkdir -p Career/Certificates
11 mkdir -p Career/Projects
12 mkdir -p Career/Skills
13 mkdir -p Career/Internship
14 mkdir -p Career/Courses
15
16 # Sample files
17 touch Career/Resume/resume.txt
18 touch Career/Skills/skills_list.txt
19
20 echo "Career folder structure created successfully!"
21 |

```

```
@anubhabbhattacharjee:~$ mkdir -p Career
@anubhabbhattacharjee:~$ mkdir -p Career/Resume
@anubhabbhattacharjee:~$ mkdir -p Career/Certificates
@anubhabbhattacharjee:~$ mkdir -p Career/Projects
@anubhabbhattacharjee:~$ mkdir -p Career/Skills
@anubhabbhattacharjee:~$ mkdir -p Career/Internship
@anubhabbhattacharjee:~$ mkdir -p Career/Courses
@anubhabbhattacharjee:~$ touch Career/Resume/resume.txt
@anubhabbhattacharjee:~$ touch Career/Skills/skills_list.txt
@anubhabbhattacharjee:~$ echo 'Career folder structure created successfully!'
Career folder structure created successfully!
```

## ➤ Exploring Emerging Technology Domain (CO3)

Perfect! Let's choose **Cloud Computing** as the domain. I'll draft a **1-page infographic content layout** you can directly use in Canva, Figma, or any infographic tool. I'll make it visually structured with headings, subheadings, and data points.

### Infographic Content: Cloud Computing

**Title:**Cloud Computing: Unlocking the Future of Technology

#### Technology Overview

- **Definition:** Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale.
- **Key Components:**
  - **IaaS** – Infrastructure as a Service (AWS EC2, Google Compute Engine)
  - **PaaS** – Platform as a Service (AWS Elastic Beanstalk, Google App Engine)
  - **SaaS** – Software as a Service (Office 365, Salesforce)
- **Benefits:**
  - Cost efficiency
  - Scalability & flexibility
  - High availability & disaster recovery
  - Easy collaboration & remote access
- **Popular Cloud Providers:** AWS, Microsoft Azure, Google Cloud, IBM Cloud, Oracle Cloud

## 2 Job Roles & Salary Trends (India, 2025 Estimates)

Job Role	Average Salary (INR/Year)	Skills Required
Cloud Engineer	8–12 Lakh	AWS, Azure, Linux, Networking
Cloud Architect	15–25 Lakh	Cloud Design, Security, DevOps
DevOps Engineer	8–15 Lakh	Jenkins, Docker, Kubernetes, CI/CD
Cloud Security Specialist	10–20 Lakh	Cloud Security, IAM, Compliance
Cloud Data Engineer	8–18 Lakh	Big Data, ETL, Cloud Databases
Site Reliability Engineer	12–22 Lakh	Monitoring, Automation, Kubernetes

### Salary Trend:

- Entry-level (0–2 years): 4–8 Lakh
- Mid-level (3–6 years): 8–15 Lakh
- Senior-level (7+ years): 15–25+ Lakh

### Skills in Demand

- Cloud platforms: AWS, Azure, GCP
- Containers & Orchestration: Docker, Kubernetes
- Scripting & Automation: Python, Bash, Terraform
- DevOps & CI/CD pipelines
- Security & Compliance
- Cloud Networking & Databases

### Razorpay

- Razorpay is a fintech startup based in India that uses cloud infrastructure to manage high-volume payment transactions efficiently.
- It uses cloud services (from providers like AWS) to ensure scalability, security, and reliability so that its payment platform can handle millions of API calls every day without downtime.

## ➤ Certification Research

### Certification 1: AWS Certified Solutions Architect – Associate

- Provider: Amazon Web Services (AWS) <https://www.aws.training/certification/?cta=saatopbanner>
- Duration: Exam length is 130 minutes with 65 multiple-choice/multiple-response questions

- Cost: \$150 USD
- Skills Covered:
- Designing cost-optimized and performance-optimized cloud solutions. Knowledge of AWS services (compute, storage, networking, databases). Security and compliance best practices

### **SMART Goal Alignment:**

- Specific: Builds expertise in AWS cloud architecture, a top skill in demand.
- Measurable: Passing the exam provides a recognized credential.
- Achievable: Requires cloud or IT background but not deep coding.
- Relevant: Directly supports career growth in cloud computing roles.
- Time-bound: Can be prepared for in 3–6 months with structured study.

## **Certification 2: Google Cloud Professional Cloud Architect**

**Provider:** Google Cloud (GCP) / via official GCP certification path <https://webassessor.com/googlecloud>

### **Duration & Cost:**

- **Exam fee:** US \$200 (≈₹17,000–₹18,000 in India, depending on exchange rate)
- Certifications are valid for 2 years (after which recertification is needed)

### **Skills Covered:**

- Planning, designing, and managing dynamic, scalable, secure, and resilient systems on Google Cloud.
- Understanding Google Cloud services — compute, storage, databases, networking, security — and related architecture best practices.
- Security, compliance, performance optimization, cost-efficient infrastructure design, and cloud business process integration.

### **Why It Fits / Alignment with SMART Goals:**

- **Specific & Relevant:** If you aim to work in companies/startups using GCP (or multi-cloud environments), this cert shows you can handle real cloud architecture.
- **Achievable (mid-term):** With prior learning in cloud fundamentals and some hands-on GCP practice, you can aim for this in 4–6 months.
- **Time-bound:** You can set a goal: “Get GCP Cloud Architect certification within next 6–9 months,” aligning with job applications or internships.
- **Measurable & Recognized:** Certification gives external validation of technical competence — useful when applying for cloud-related roles.

## **Year 1: Foundation & Core Skills (Beginner Level)**

**Goal:** Understand cloud basics, get hands-on with one major platform (AWS/GCP/Azure), and build small projects.

### **Roadmap [2<sup>nd</sup> sem – 7<sup>th</sup> sem]**

#### ◆ **Cloud Fundamentals**

- What is Cloud Computing? Types: IaaS, PaaS, SaaS
- Benefits, deployment models (Public, Private, Hybrid)
- Key providers: AWS, Azure, GCP

#### ◆ **Learn One Cloud Platform (Start with AWS or GCP)**

- Core services: Compute (EC2), Storage (S3), Networking (VPC)
- IAM (Identity & Access Management)
- Hands-on: Host a static website, deploy a simple app

#### ◆ **Linux + Networking Basics**

- Linux commands, shell scripting
- IP, DNS, HTTP/HTTPS, firewalls
- Practice on Ubuntu or CentOS

#### ◆ **DevOps Basics**

- CI/CD concepts
- Tools: Git, GitHub, Docker basics
- Build a CI/CD pipeline for a sample app

## **Year 2: Intermediate Skills & DevOps Integration**

**Goal:** Master DevOps tools, automation, and infrastructure as code.

#### ◆ **Infrastructure as Code (IaC)**

- Learn Terraform or AWS CloudFormation

- Automate EC2, S3, VPC setups
- Projects: Deploy multi-tier architecture using IaC

#### ◆ **Containers & Orchestration**

- Docker deep dive
- Kubernetes basics (minikube, kubectl)
- Deploy containerized apps on cloud

#### ◆ **Monitoring & Security**

- Tools: Prometheus, Grafana, CloudWatch
- Cloud security best practices
- IAM policies, encryption, compliance

### **Year 3: Advanced Cloud Engineering & Specialization**

**Goal:** Become job-ready with advanced cloud architecture, multi-cloud, and specialization.

#### ◆ **Advanced Cloud Services**

- Serverless (AWS Lambda, GCP Cloud Functions)
- Event-driven architecture
- Messaging: SQS, Pub/Sub

#### ◆ **Multi-Cloud & Hybrid Architectures**

- Compare AWS, GCP, Azure services
- Design hybrid cloud solutions
- Use tools like Anthos or Azure Arc

#### ◆ **Months 33–36: Specialization + Portfolio**

Choose a path:

- **DevOps Engineer:** Focus on CI/CD, Jenkins, GitOps
- **Cloud Security:** Learn IAM, KMS, compliance
- **Cloud Architect:** Design scalable, resilient systems

# Reflection Section

## 1. Challenges Encountered

While completing this assignment, the main challenge was balancing technical tasks with career-oriented activities—especially when exploring cloud computing, which has a vast and rapidly evolving ecosystem. Understanding different cloud roles, certifications, and industry trends required careful research. At the same time, switching between Linux practice, scripting, and career planning demanded strong time management and focus. Ensuring originality while gathering reliable information also pushed me to work more thoughtfully.

## 2. Skills Improved

This assignment helped me strengthen both my technical and professional abilities. I became more comfortable using Linux commands and writing basic automation scripts—skills that are essential in cloud environments. Researching cloud certifications like AWS, Azure, and Google Cloud improved my understanding of career pathways in the cloud domain. Creating SMART goals, building my infographic, and updating my LinkedIn profile also enhanced my communication and planning skills.

## 3. Application to My Academic & Professional Journey

What I learned will directly support my future in cloud computing. The Linux and scripting skills will help me work more efficiently in cloud-based labs and projects. The certification research gave me a clear idea of which cloud pathways I want to pursue and how they align with my long-term career goals. Strengthening my online presence and preparing for hackathons will further help me build a strong foundation as I move toward becoming a cloud engineer or cloud specialist.

# LinkedIn Update:

Linkdin Profile URL : <http://www.linkedin.com/in/anubhab-bhattacharjee-646714381>

Anubhab Bhattacharjee's LinkedIn profile page. It includes a profile picture, contact information (techanubhab10@gmail.com), and a summary section. Below this are sections for 'Suggested for you', 'Analytics' (21 profile views, 5 post impressions), 'Activity' (1 follower, a post about starting his Bachelor of Technology at K.R. Mangalam University), 'Experience' (Job Title: Bachelor of Technology - BTech, Computer Science, 2021, Organization: K.R. Mangalam University), 'Education' (Bachelor of Technology - BTech, Computer Science, 2021, K.R. Mangalam University), 'Skills' (Python (Programming Language), JavaScript), and 'Interests' (Top Values: Companies, Design, Newsletters, Schools). A follow button for Aman Gupta is also present.

**Contact**  
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[www.linkedin.com/in/anubhab-bhattacharjee-646714381](http://www.linkedin.com/in/anubhab-bhattacharjee-646714381)  
(LinkedIn)

**Top Skills**  
Python (Programming Language)  
JavaScript  
Cascading Style Sheets (CSS)

## Anubhab Bhattacharjee

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### Education

K.R. Mangalam University  
Bachelor of Technology - BTech, Computer Science · (2025)

