

Bachelor of Technology in  
**Computer Science Engineering**

Specialisation in Software Product Engineering



**TAKSHASHILA**  
**UNIVERSITY**

Powered by



**#EngineeredDifferently**

India's only work-integrated B.Tech program with assured internships at top tech companies at end of first year



# Program at a Glance



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B.Tech Program After 12th | 4 Year Full-Time On-Campus

## Key Highlights

### Professional Tech Skills

Master in-demand tech skills like **Full Stack Development** through industry level project-based learning



### Assured Paid Internships

Intern from Year 2 to 4 at top tech companies & earn **Stipends up to INR 8 Lakh**



### 3 Times Better Pay Package

Gain **3 Years Work Experience** while learning to get a **3X higher CTC** in final year placements



### Personalized Mentorship

Get **Mentored by Tech Professionals** and become industry ready faster



## Potential Recruitment Partners



+more

## Backed by Top Tech Leaders



**Rahul Chari**  
Co-Founder, CTO  
at PhonePe



**Anupam Mittal**  
Founder  
at People Group



**Kunal Shah**  
Founder  
at CRED



**Nithin Kamath**  
CEO  
at Zerodha



**Ankit Bhati**  
Ex Co-Founder  
at OLA

+more

# About Kalvium



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The Tech Industry has been the prime mover behind all major advancements in the world. Today's technology companies require skills and experience, and not just degrees and that's where Kalvium comes into picture.

At Kalvium, our vision is to reimagine the Tech degrees offered by universities today, making them relevant for today and tomorrow. We do this by building an ecosystem powered by our proprietary cutting edge curriculum that offers an immersive learning experience.

Kalvium provides work-integrated Computer Science degree programs in collaboration with top accredited universities to help graduates achieve real-world readiness. Skills where graduation outcomes are aligned with industry roles and experience with work opportunities from Year 2 of study.

Kalvium's promoter team has over 12 years of experience in the IT talent management space. Over the years they have had strong working relationships with leading IT companies from India and abroad. We have the experience in serving over 500+ technology companies in the past and leveraging this experience to rope in recruitment partners for this Work Integrated Degree program model.

Apart from past experience, the promoters have also raised external investment from founders and CEO's of some of the biggest Tech brands in the world like Flipkart, Udaan, Cred, Ola Cabs, Zerodha, PhonePe to name a few.



# The Program Highlights



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## Relevant Work experience

With our work-integrated curriculum, students get paid internship opportunities with top tech companies at the end of the 1st year which will prime the students with relevant work experience and they graduate being industry-ready.

## Empowering Financial Independence

With an earning potential of up to INR 8 Lakhs in stipend, students get to work with top tech companies which inculcates a sense of responsibility.

## Higher salary package

Kalvium's students graduate with 3 years of work experience, which puts them way ahead of their peers as freshers and have the potential to earn a 3x higher salary package.

## Placements in top tech companies

The Kalvium program is backed by Tech Industry leaders and houses an exhaustive list of top tech companies that provide end of 1st year paid internships and final year placements.

## Nurture growth mindset

Kalvium powered by its cutting-edge curriculum is designed to help you nurture a growth mindset and big picture thinking, and in turn you begin to set bigger career goals as well as develop an attitude of lifelong learning.

## One-to-One Personal mentorship

One-to-one personal mentorship which is offered as part of the program at Kalvium aims at helping students grow to become their unique best versions and nurture them to become tech leaders of tomorrow.



# Program Structure

The program has 4 types of courses broadly defined as -

## Skilling Courses

A set of courses crafted to take a liberal approach to help students develop crucial 21st-century skills and cognitive abilities in both professional and personal life.

## Foundation Courses

Courses oriented towards MERN Stack Development, that starts with basic programming eventually leading up to high-level product development.

## Academic Courses

Designed to inculcate strong foundational knowledge in computer science, the courses are thoughtfully crafted to impart concepts, their applications & practical labs associated with them.

## Integrated Work

Relevant work experience in top tech companies where students gain real world software development expertise, workplace exposure, and industry-ready skills.

## B.Tech in Computer Science Engineering with specialization in Software Product Engineering

**8 Semesters**

**Subjects 36**

**184 Credits**

# Key Milestones



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## 4 Years at Kalvium, a foundation for a Thriving Tech Career

### START



Join Takshashila's B. Tech Program in Computer Science Engineering powered by Kalvium

Bootcamp on Computer Science Fundamentals & Software Developer Skills



### END OF SEMESTER

Guaranteed paid internships at top tech companies

1:1 Student Mentorship by Industry Experts + Skill Development + Academic Foundation



### START OF SEMESTER

3x CTC at Final Year Placements at top tech companies

### START OF SEMESTER

Capstone Project.



Earn your degree and kickstart your career.

### FINISH

# List of Courses



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## Academic Courses

1. The breadth of Computer Science - 1
2. The breadth of Computer Science - 2
3. Data Structures & Algorithms
4. Discrete Mathematics
5. Computer Organization & Architecture
6. Operating Systems
7. Design & Analysis of Algorithms
8. Database Management Systems
9. Formal Language & Automata Theory
10. Object Oriented Programming
11. Compiler Design
12. Computer Networks
13. Design for Developers



## Foundation Courses

- Critical Thinking 101 .1
- Professional Skills for The Workplace .2
- Learning How to Learn .3
- Principles of Science .4
- Mathematical Thinking 101 .5
- How Human Languages Work? .6
- Tools & Techniques for Creative Thinking .7
- English LSRW .8
- Discovering Self .9
- Fundamentals of Business Management.10

# Delivery powered by QUADRANGLE



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Quadrangle is Kalvium's proprietary A.I powered learning ecosystem that offers an immersive learning experience.



Offers outcome-focused rich analytics for students to keep a track of their performance.



Facilitates work-integration by providing necessary performance & productivity metrics.



Provides Interactive lessons, live classes, mini-projects, challenging labs, & more.



# Skilling Courses



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With Kalvium, you learn new-age tech skills as core concepts in Year 1 & in-demand technologies that enable you to become a Full Stack Developer before graduation.



VS code

HackerRank

Hackerrank



Git + Github

## Problem Solving Using Programming



CI CD



Aws cloud



Heroku



REST API



Dev Ops

## Full Stack Development



HTML



Bootstrap



APIs



CSS



React JS



Javascript



Ajax



ES6

## Front End Development

MONGOOSE

Mongoose

redis

Redis



mongoDB

MongoDB

## Databases

express

Express



Postman

node

Node.Js

## Back End

# Student Development Activities



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Kalvium's cutting-edge curriculum is aimed at creating an all-around fascinating learning experience that not only primes up the academic proficiency but also helps nurture students to become the best version of themselves.

The student development activities are a core part of the curriculum and are intended to involve students in free-spirited learning activities that promote cross-disciplinary skills such as communication, confidence, peer learning, presentation, creative problem-solving and interaction with high achievers from the tech industry.

Here's to name a few that you would be experiencing as part of the curriculum;

## Podcast- Kalvium Konnect

These sessions are focused on encouraging learning from peers and experts. The expert sessions would be handled by high-achievers (CTOs, Engineering Managers, SDEs, etc.) from the tech industry, which will give students the exposure to real-world engineering problems and how teams go about solving them. The peer sessions on the other hand would be an opportunity for students from the same class to present new & interesting topics for others to learn from.

## Competitive Programming (CP) Club

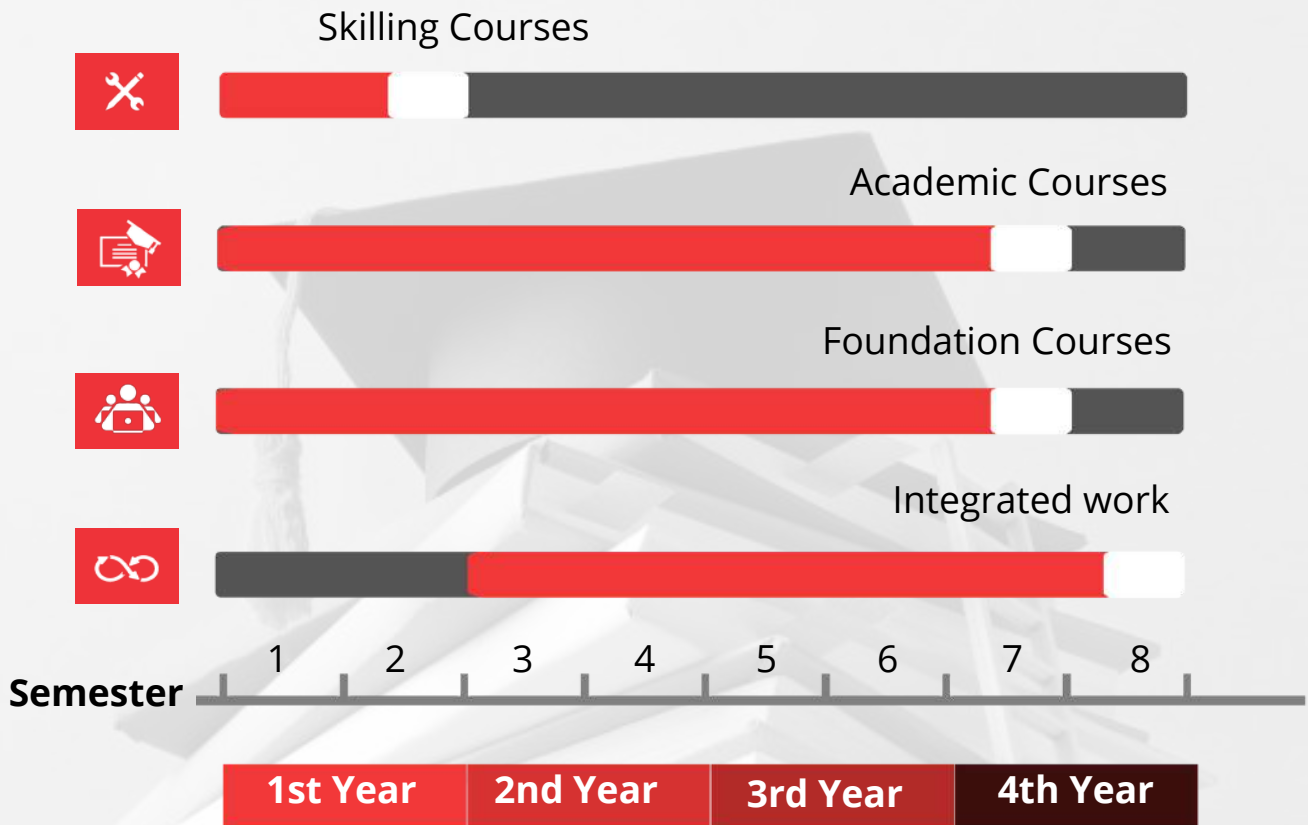
This one is our personal favorite; sessions under the CP Club are headlined by high achievers from the world of competitive programming - top-rankers from contests such as Google Code Jam, Hash Code, Kickstart, Facebook's Hacker Cup, ICPC, and more. The aim of these sessions would be to teach ideal problem-solving techniques for CP problems, build awareness of CP in one's career as well a roadmap towards landing top tech jobs.



# Credit Plan



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CREDIT PLAN	NO. OF SUBJECTS	CREDITS
Academic Courses	17	59
Foundation Courses	13	45
Skilling Courses	5	20
Open Elective	1	4
<b>Integrated work</b>	-	<b>56</b>
<b>Total</b>	<b>36</b>	<b>184</b>



# Semesters at a Glance

## Year 01

### Semester 01

Credits: 26

### Semester 02

Credits: 20

Front -End Web Development .....	4
Critical Thinking 101.....	4
Discrete Mathematics .....	4
Professional Skills for the Workplace.....	3
The Breadth of Computer Science 1.....	4
Problem Solving using Programming .....	4
Design for Developers .....	3

Back-End Web Development .....	5
Databases .....	3
Learning How to Learn .....	4
The Breadth of Computer Science 2 .....	4
Full Stack Development .....	4

## Year 02

### Semester 03

Credits: 22

### Semester 04

Credits: 24

Economics, Politics & Society Development.....	3
Mathematical Thinking 101 .....	4
Database Management Systems ....	5
Object Oriented Programming .....	4
Integrated Work .....	8

How Human Language Work .....	4
Tools & Techniques for Creative Thinking.....	4
Operating Systems .....	3
Data Structures and Algorithms ....	4
Integrated Work with a Partner Company .....	8
Operating Systems Lab.....	1



# Semesters at a Glance

## Year 03

### Semester 05

Credits: 26

English LSRW .....	3
Principles of Science .....	4
Computer Organization & Architecture .....	4
Compiler Design .....	4
Design & Analysis of Algorithms .....	3
Integrated Work with a Partner Company .....	8

### Semester 06

Credits: 22

Discovering Self .....	3
Fundamentals of Business Management .....	3
Formal Language & Automata Theory .....	4
Computer Networks .....	4
Integrated Work with a Partner Company .....	8

## Year 04

### Semester 07

Credits: 22

Introduction to Philosophy .....	3
Foundation Elective .....	3
Academic Elective -1 .....	4
Academic Elective -2 .....	4
Integrated Work with a Partner Company .....	8

### Semester 08

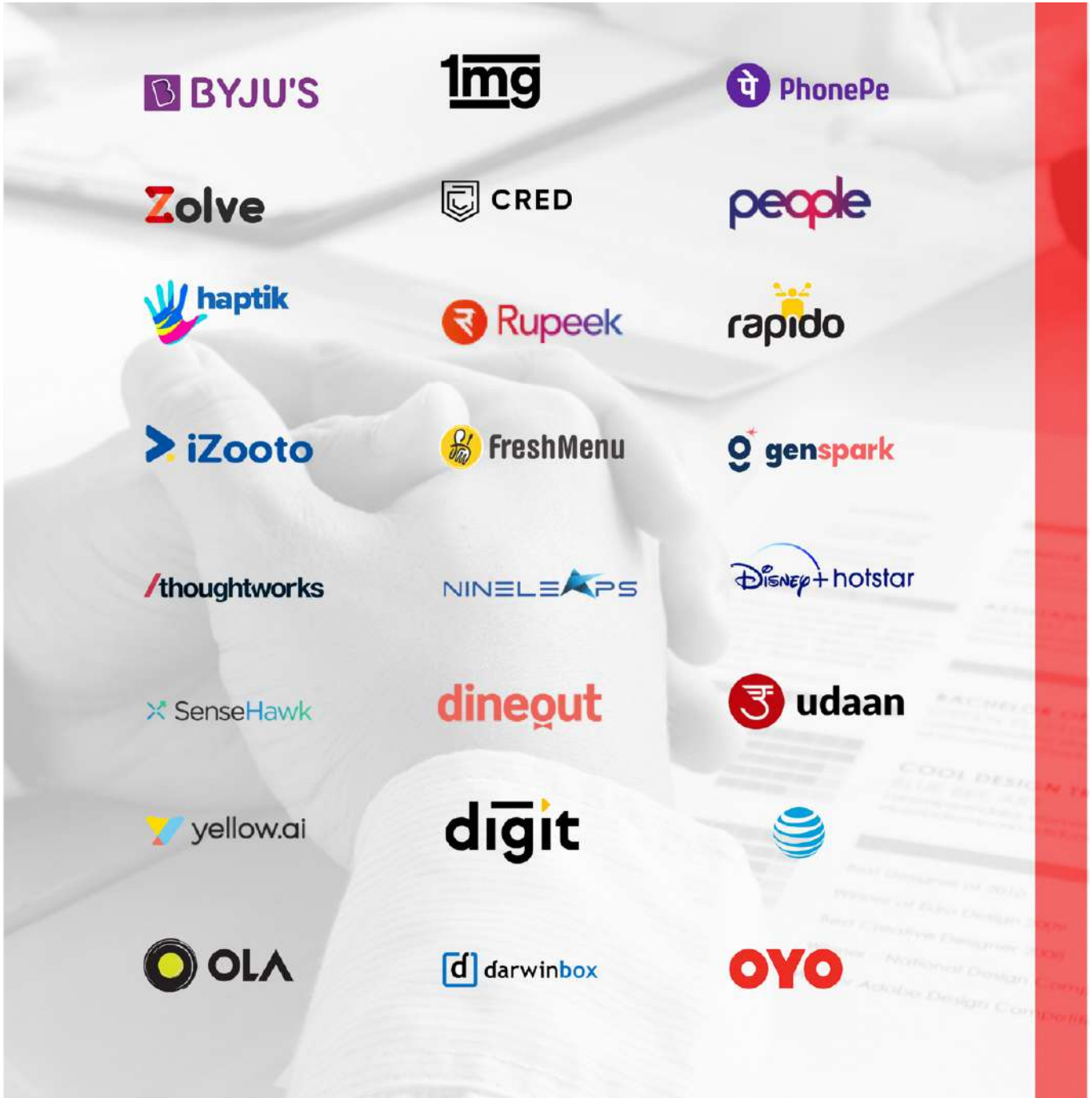
Credits: 20

Any approved Open Elective- any field .....	4
Integrated Work with a Partner Company .....	16

# Potential Recruiting Partners



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# Backed by Top Leaders in Tech



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**Nithin Kamath**  
CEO  
at Zerodha



**Rahul Chari**  
Co-Founder, CTO  
at PhonePe



**Kunal Shah**  
Founder  
at CRED



**Sujeet Kumar**  
Co-Founder  
at Udaan



**Vaibhav Shah**  
SVP Engineering at  
ACKO Insurance



**Anurag Vohra**  
CTO at Bajaj Finserv  
Health



**Aravind Sanka**  
Co-founder & CTO  
at Rapido



**Mathangi Sri**  
CDO  
at Cred Avenue



**Guru Venkatachalam**  
VP and CTO- APJ  
at VMWare



**Himanshu Verma**  
CPTO  
at Licious



**Gaurav Agarwal**  
Co-Founder  
at 1mg



**Kailash Nadh**  
CTO  
at Zerodha



**Ankit Bhati**  
Co-Founder  
at OLA



**Anil Goel**  
President  
at Byju's



**Romil Jain**  
Co-Founder & CTO  
at INCREFF



**Kumar Muthuraman**  
Professor at  
The University of Texas



**Manjunath Talwar**  
Product Lead  
at Cred



**Muralidharan**  
Head Strategy & Ops  
at Yellow.ai



**Abhilash Nair**  
APAC Recruiting Leader  
at Google



**Sarv Saravanan**  
VP & Business Leader  
at Microsoft

# Admission Process



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**STEP 1**

Log in to the Kalvium page on the official Tashashila's website & Register using your contact information

Take the Kalviness Quotient Challenges (eligibility test)

**STEP 2**

**STEP 3**

Submit your application

The application is reviewed & the results announced by Kalvium in 7-10 working days.

**STEP 4**

**STEP 5**

Accept admission offer & submit the program fee





# Eligibility Test & Criteria



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**100% Cut-Off for Passion. Marks don't Matter.**

**Eligibility Test**

**Eligibility Test Attempts**

**Practice Tests**

**Age Criteria**

**The Kalviness Quotient (KQ) Challenges**

**1 attempt  
\*Multiple sitting**

**Available alongside the  
KQ Challenges**

**Minimum: 16 years  
Maximum: 20 years**

**The Kalvium Eligibility Test is divided into seven sections,**

1. Data Interpretation & Analysis
2. Numerical Skills
3. Logical Reasoning
4. Communication Skills
5. Creative Thinking
6. Problem Solving Skills
7. Algorithmic Skills



Unlike typical entrance exams, this is not a relative grading measure but an absolute measure that closely correlates with how ready you are for a career in software engineering



# A glimpse of the KQ challenge



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## Test 1: Data interpretation and analysis



### Can you understand data?

Duration 35 mins    No. of questions 15    Max. Marks 15

Navigate to a question

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15

00:33:22    END PRACTICE

### Question 1

+1 0 0

Based on the information provided here, answer the question(s) given below:

Indira Gandhi International Airport is the primary airport of the National Capital Region of Delhi, situated in West Delhi, 16 km (10 mi) southwest of New Delhi's city centre. It is a critical place and is busy all the time. Inspections happen at regular intervals here. The data of inspection is referred to as a bar graph. It shows the comparison of international and domestic flights at the airport.

Flight inspections at Indira Gandhi International airport

Inspection Period	International flights (in thousands)	Domestic flights (in thousands)
1	9	10
2	7.5	8.5
3	5	11
4	9	12.5
5	9.5	13.5

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# A glimpse of the KQ challenge



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## Test 2: Numerical skills

**Can you work with numbers?**

Duration: 30 mins | No. of questions: 15 | Max. Marks: 15

Navigate to a question

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15

00:29:53 **END PRACTICE**

**Question 1**

+1 0 0

A shelter has 18 puppies and 12 kittens ready to be adopted. The average weight of the two groups of puppies and kittens is 5 kgs and 2.5 kgs respectively. What is the average weight of all the pets?

Your response

Choose one of the below

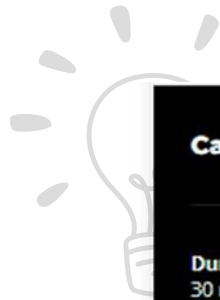
- 4 kgs
- 3.75 kgs
- 4.25 kgs
- 4.5 kgs

# A glimpse of the KQ challenge



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## Test 3: Logical reasoning and decision making skills



**Can you reason and make decisions?**

Duration: 30 mins      No. of questions: 15      Max. Marks: 15

Navigate to a question

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15

00:29:46      **END PRACTICE**

Which of the following statements best weakens the following argument?  
Apple has the best smart phone in the market because it uses the iOS operating system in its phones

Your response      CLEAR

Choose one of the below

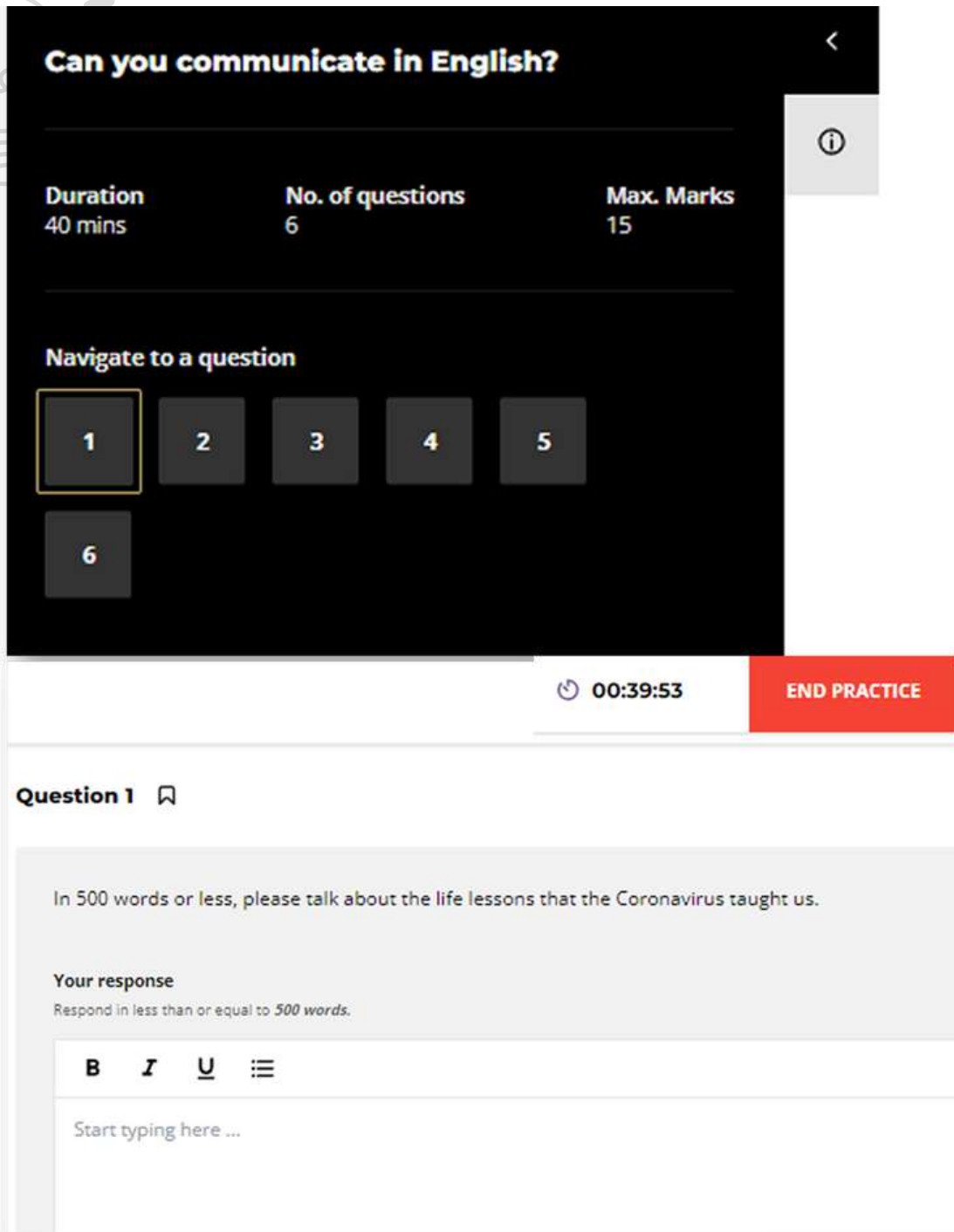
- As per the latest research reports, iOS has been found to be the best mobile operating system there is. This was concluded after comparing the performances of more than 500 smartphones across the world.
- Apple has products other than smart phones too, in its repertoire.
- Apple was founded by Steve Jobs.
- Apple has raked in \$1 billion USD from selling smart phones in the last 10 years.
- The iOS has been found to have serious performance issues in its last update, which is affecting the speed of its phones.

# A glimpse of the KQ challenge



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## Test 4: Communication skills

A screenshot of a KQ challenge interface. The title is "Can you communicate in English?". It shows a duration of 40 mins, 6 questions, and 15 max marks. There are navigation buttons for questions 1 through 6, with question 1 selected. A timer shows 00:39:53 and an "END PRACTICE" button is visible. The question text is "In 500 words or less, please talk about the life lessons that the Coronavirus taught us." Below the question is a "Your response" section with a text area and a toolbar containing bold, italic, underline, and list icons. The text area contains the placeholder "Start typing here ...".

**Can you communicate in English?**

Duration: 40 mins | No. of questions: 6 | Max. Marks: 15

Navigate to a question

1 2 3 4 5 6

00:39:53 END PRACTICE

**Question 1**

In 500 words or less, please talk about the life lessons that the Coronavirus taught us.

**Your response**  
Respond in less than or equal to 500 words.

**B I U** ☰

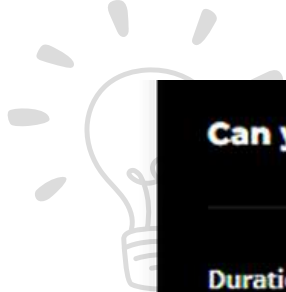
Start typing here ...

# A glimpse of the KQ challenge



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## Test 5: Creativity



### Can you think different?

Duration	No. of questions	Max. Marks
10 mins	1	-

Navigate to a question

1

00:09:53

END PRACTICE

Question 1

Write as many alternate uses as you can for a **Frying Pan**

Your response

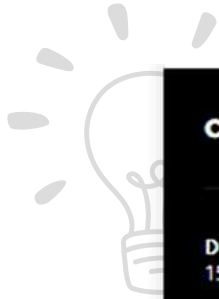
+

# A glimpse of the KQ challenge



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## Test 6: Problem solving skills



### Can you solve problems step by step?

Duration	No. of questions	Max. Marks
15 mins	5	5

Navigate to a question

1 2 3 4 5

00:14:51 END PRACTICE

You are given two sequences - an input and an output. You need to transform the input sequence into the output sequence by performing a sequence of operations. Here is the list of operations you could perform.

**Previous(X):**It will replace all the characters in the sequence with the Xth previous character in the alphabet. For instance, if the sequence is BCD, Previous(1) will turn the sequence as ABC. In other words, every character is replaced by 1 previous character.

**Increment(X, Y):**This will increment all characters in the Xth ordinal positions with the Yth element in the sequence. For instance, if the sequence is BCD, Increment (Even, 1) will turn the sequence CCE. In other words, characters in the even positions are replaced by the very next element.

**Swap(X, Y):**This will replace the character X with character Y. For e.g., if the sequence is BCD, Swap (C, D) will turn the sequence as BDD.

Please choose the right sequence to get the output we need.

### Input

Z U Y R L

# A glimpse of the KQ challenge



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## Test 7: Algorithmic thinking



### Can you be creative with a turtle?

Duration	No. of questions	Max. Marks
120 mins	1	10

GUIDE THE TURTLE

Navigate to a question

1



01:59:35

END PRACTICE

Question 1

+10 0 0

Please recreate on the canvas the image given below (with the elements in the same order) using the turtle commands. Please use the guide on the left side of your screen to learn the commands that our turtle understands.



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# Fee and Scholarship

## TUITION FEE

- ₹ 5,00,000 Per annum

## SCHOLARSHIP

- Kalvium scholarship up to ₹ 2,00,000 per annum  
Based on merit in Kalviness Quotient (KQ) Challenges

## TUITION FEE

*(After scholarship)*

- ₹ 3,00,000 per annum

Additional charges (some optional) including examination, hostel, transport etc. are applicable as per the university guidelines. Please refer to Takshashila's official university website for more information.

# APPLICATIONS ARE OPEN



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**B.Tech Degree in Computer Science**

**#EngineeredDifferently**

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