



# Binary Search Playlist

Video - 39 ✓



Leetcode  
- 2594  
Medium



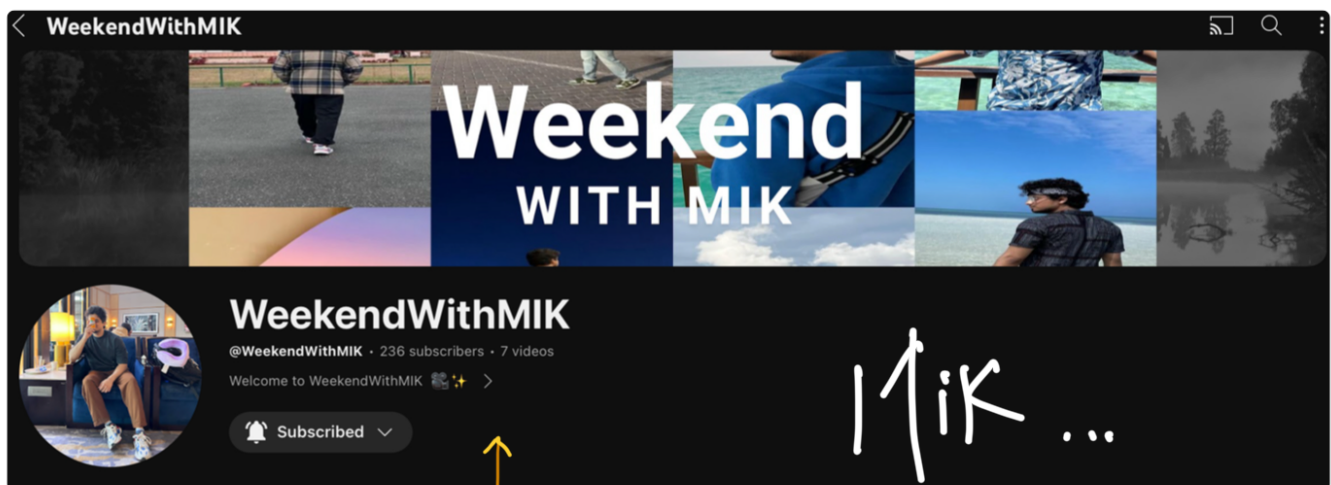
codestorywithmik



Cs with MIK



codestorywithMIK



Try this channel to know:-

ee "Life behind the screen + tech news"

# Motivation :-

One day, you'll realize that  
Your dream died because you chose comfort  
over effort.

Don't let that regret haunt you forever.



MIK...

## 2594. Minimum Time to Repair Cars

Medium

Topics

Companies

Hint

$$\text{time} = (r * n^2) \text{ minutes}$$

You are given an integer array `rank` representing the rank of some mechanics.  $\text{rank}_i$  is the rank of the  $i^{\text{th}}$  mechanic. A mechanic with a rank  $r$  can repair  $n$  cars in  $r * n^2$  minutes.

You are also given an integer `cars` representing the total number of cars waiting in the garage to be repaired.

Return the minimum time taken to repair all the cars.

**Note:** All the mechanics can repair the cars simultaneously.

**Example :-**  $\text{rank} = [4, 2, 3, 1]$ ,  $\text{cars} = 10$

$\begin{matrix} 0 & 1 & 2 & 3 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 2 & 2 & 2 & 4 \end{matrix}$

Output = 16

$$4 * 2^2 = 16 \text{ min}$$

$$2 * 2^2 = 8 \text{ min}$$

16 min

$$3 * 2^2 = 12 \text{ min} \checkmark$$

$$1 * 4^2 = 16 \text{ min} \checkmark$$

# Thought Process

<sup>0</sup> <sup>1</sup> <sup>2</sup> <sup>3</sup>  
[ 4, 2, 3, 1 ], cars = 10

$$\text{time} = \text{rank}[i] * n^2$$

Mechanic-0 (4)	Mechanic-1 (2)	Mechanic-2 (3)	Mechanic-3 (1)
4 * 2 <sup>2</sup> = 16 ✓	2 * 2 <sup>2</sup> = 8 ✓	3 * 2 <sup>2</sup> = 12 ✓	1 * 4 <sup>2</sup> = 16 ✓
4 * 4 <sup>2</sup> = 64	2 * 2 <sup>2</sup> = 8	3 * 1 <sup>2</sup> = 3	1 * 3 <sup>2</sup> = 9
4 * 3 <sup>2</sup> = 36	2 * 3 <sup>2</sup> = 18	3 * 2 <sup>2</sup> = 12	1 * 2 <sup>2</sup> = 4

Max(16, 8, 12, 16) = 16 minutes

✓ Case - 1 : Max (16, 8, 12, 10)

Case - 2 : Max (64, 8, 3, 9) = 64 minutes

Case - 3 : Max (36, 18, 12, 4) = 36 minutes

⋮  
⋮  
⋮

Minimize

Minimize the Maximum  
of each case

→ Binary Search on Answer (time).

"Binary Search on time"

ranks =  $\begin{bmatrix} 4 & 2 & 3 & 1 \end{bmatrix}$ , Cars = 10  
 $\begin{matrix} \downarrow & \downarrow & \downarrow & \downarrow \\ a & b & c & d \end{matrix}$   
time = rank \*  $n^2$  ←

$$l = 1$$

$$\begin{aligned} r &= \max R * (\text{cols})^2 \\ &= 4 * 10^2 \\ &= 400 \end{aligned}$$

$$\text{mid} = (l + r) / 2 = (1 + 400) / 2 = 200$$

```
while (l <= r) {  
    mid = l + (r - l) / 2;  
    if (isPossible( ) ) {  
        result = mid;  
        r = mid - 1;  
    } else {  
        l = mid + 1;  
    }  
}
```

return result;

$$\text{time} = \text{rank} * n^2$$

$$n^2 = \text{time} / \text{rank}$$

$$n = \sqrt{\text{time} / \text{rank}}$$

the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million, from 2.5 million in 1980 to 4 million in 1999. The public sector has also become an important employer of people with disabilities, with 1.5 million people with disabilities employed in the public sector in 1999, compared with 1.2 million in 1980.

There are a number of reasons why the public sector has become an important employer of people with disabilities. One reason is that the public sector has a long history of employing people with disabilities. In the 19th century, the public sector employed people with disabilities in a number of different roles, including as clerks, typists, and stenographers.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million, from 2.5 million in 1980 to 4 million in 1999. The public sector has also become an important employer of people with disabilities, with 1.5 million people with disabilities employed in the public sector in 1999, compared with 1.2 million in 1980.

There are a number of reasons why the public sector has become an important employer of people with disabilities. One reason is that the public sector has a long history of employing people with disabilities. In the 19th century, the public sector employed people with disabilities in a number of different roles, including as clerks, typists, and stenographers.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

One of the main reasons why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.

Another reason why the public sector has become an important employer of people with disabilities is that the public sector has a number of different departments and agencies, each of which has its own specific needs. This means that the public sector can employ people with disabilities in a wide range of roles, from clerical to professional.



the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million (1990–1999) and is projected to increase by a further 1.5 million by 2010 (Office for National Statistics, 2000).

There is a growing awareness of the need to develop strategies to meet the needs of the ageing population. The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).

The Department of Health (1999) has identified the need to develop a new paradigm of care for the ageing population, one that is based on the concept of 'active ageing' and 'active living' (Department of Health, 1999, p. 1).







the 1990s, the number of people in the world who are under 15 years of age has increased by 1.2 billion (United Nations 1999).

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 113 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education'.

the 1990s, the number of people in the UK with a mental health problem has increased by 50% (Mental Health Foundation 2000).

There is a growing awareness of the need to address the needs of people with mental health problems in the community. The UK government has set out a strategy for mental health care in the 21st century (Department of Health 1999). This strategy emphasizes the need to provide a range of services to meet the needs of people with mental health problems, including community mental health teams, crisis services, and aftercare services. The strategy also emphasizes the need to involve people with mental health problems in the development and delivery of services.

One of the key challenges in the development and delivery of mental health services is the need to ensure that services are accessible to all people who need them. This is particularly true for people who are homeless, who are often at the greatest risk of mental health problems.

One of the ways in which the UK government has sought to address this challenge is by setting out a strategy for mental health care in the 21st century (Department of Health 1999). This strategy emphasizes the need to provide a range of services to meet the needs of people with mental health problems, including community mental health teams, crisis services, and aftercare services.

The strategy also emphasizes the need to involve people with mental health problems in the development and delivery of services. This is particularly important for people who are homeless, who are often at the greatest risk of mental health problems.

One of the key challenges in the development and delivery of mental health services is the need to ensure that services are accessible to all people who need them. This is particularly true for people who are homeless, who are often at the greatest risk of mental health problems.

One of the ways in which the UK government has sought to address this challenge is by setting out a strategy for mental health care in the 21st century (Department of Health 1999). This strategy emphasizes the need to provide a range of services to meet the needs of people with mental health problems, including community mental health teams, crisis services, and aftercare services.

The strategy also emphasizes the need to involve people with mental health problems in the development and delivery of services. This is particularly important for people who are homeless, who are often at the greatest risk of mental health problems.

One of the key challenges in the development and delivery of mental health services is the need to ensure that services are accessible to all people who need them. This is particularly true for people who are homeless, who are often at the greatest risk of mental health problems.

One of the ways in which the UK government has sought to address this challenge is by setting out a strategy for mental health care in the 21st century (Department of Health 1999). This strategy emphasizes the need to provide a range of services to meet the needs of people with mental health problems, including community mental health teams, crisis services, and aftercare services.

The strategy also emphasizes the need to involve people with mental health problems in the development and delivery of services. This is particularly important for people who are homeless, who are often at the greatest risk of mental health problems.

One of the key challenges in the development and delivery of mental health services is the need to ensure that services are accessible to all people who need them. This is particularly true for people who are homeless, who are often at the greatest risk of mental health problems.

One of the ways in which the UK government has sought to address this challenge is by setting out a strategy for mental health care in the 21st century (Department of Health 1999). This strategy emphasizes the need to provide a range of services to meet the needs of people with mental health problems, including community mental health teams, crisis services, and aftercare services.



