In [56]:
```
import pandas as pd
import matplotlib.pyplot as plt
studentsofrec = {
    "Smith": 99,
    "Virat": 85,
    "Kane": 62,
    "Root": 23,
    "Ashwin": 70,
    "Yuvraj": 33,
    "Kapil": 94,
    "Sunil": 55,
    "Sandeep": 21,
    "Dhawan": 84,
    "Rahul": 66,
    "Bumrah": 59,
    "Dravid": 49,
    "Ganguly": 14,
    "Zaheer": 81,
    "VVS": 67,
    "Kumble": 69,
    "Shami": 39,
    "Hardik": 95,
    "Jasprit": 71
}
df = pd.DataFrame(list(studentsofrec.items()), columns=['Name', 'Score'])

excel_filename = 'student_scores.xlsx'
df.to_excel(excel_filename, index=False)
print(f"Data has been written to {excel_filename}")
```

```
Data has been written to student_scores.xlsx
```

In [57]:
```
df_read = pd.read_excel(excel_filename)
print("Data read from Excel file:")
print(df_read)
average_score = df_read['Score'].mean()
print("Average Score:", average_score)
```

```
Data read from Excel file:
       Name  Score
0     Smith     99
1     Virat     85
2      Kane     62
3      Root     23
4    Ashwin     70
5    Yuvraj     33
6     Kapil     94
7     Sunil     55
8   Sandeep     21
9    Dhawan     84
10    Rahul     66
11   Bumrah     59
12   Dravid     49
13  Ganguly     14
14   Zaheer     81
15      VVS     67
16   Kumble     69
17    Shami     39
18   Hardik     95
19  Jasprit     71
Average Score: 61.8
```

In [58]:
```
passing_score = 50
passed_students = df_read[df_read['Score'] >= passing_score]
print("Number of Students Passed:", len(passed_students))
print("Scores of Students Who Passed:")
print(passed_students)
```

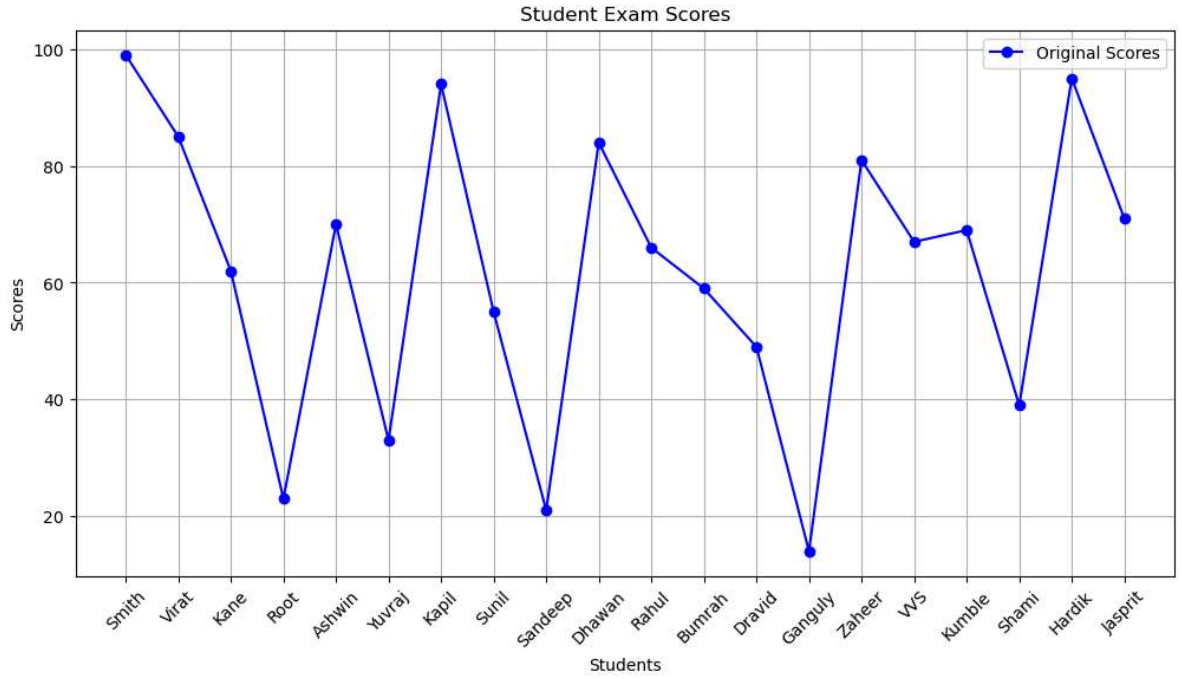
```
Number of Students Passed: 14
Scores of Students Who Passed:
       Name  Score
0     Smith     99
1     Virat     85
2      Kane     62
4    Ashwin     70
6     Kapil     94
7     Sunil     55
9    Dhawan     84
10    Rahul     66
11   Bumrah     59
14   Zaheer     81
15      VVS     67
16   Kumble     69
18   Hardik     95
19  Jasprit     71
```

In [59]:
```
def determine_grade(score):
    if score > 90:
        return "O"
    elif score > 80:
        return "A+"
    elif score > 70:
        return "A"
    elif score > 60:
        return "B+"
    elif score >= 50:
        return "B"
    else:
        return "Fail"

df_read['Grade'] = df_read['Score'].apply(determine_grade)
print("Grades:")
print(df_read)
```

```
Grades:
       Name  Score Grade
0     Smith     99     O
1     Virat     85    A+
2      Kane     62    B+
3      Root     23  Fail
4    Ashwin     70    B+
5    Yuvraj     33  Fail
6     Kapil     94     O
7     Sunil     55     B
8   Sandeep     21  Fail
9    Dhawan     84    A+
10    Rahul     66    B+
11   Bumrah     59     B
12   Dravid     49  Fail
13  Ganguly     14  Fail
14   Zaheer     81    A+
15      VVS     67    B+
16   Kumble     69    B+
17    Shami     39  Fail
18   Hardik     95     O
19  Jasprit     71     A
```

In [60]:
```
plt.figure(figsize=(12, 6))
plt.plot(df_read['Name'], df_read['Score'], marker='o', color='blue', linestyl
plt.title("Student Exam Scores")
plt.xlabel("Students")
plt.ylabel("Scores")
plt.xticks(rotation=45)
plt.grid(True)
plt.legend()
plt.show()
```



In [61]:
```
max_score = df['Score'].max()
curve_amount = 100 - max_score
df['Curved Score'] = df['Score'] + curve_amount
average_curved_score = df['Curved Score'].mean()
print("Average Curved Score:", average_curved_score)
df['Grade'] = df['Curved Score'].apply(determine_grade)
print(df)
```

```
Average Curved Score: 62.8
       Name  Score  Curved Score Grade
0     Smith     99           100     O
1     Virat     85            86    A+
2      Kane     62            63    B+
3      Root     23            24  Fail
4    Ashwin     70            71     A
5    Yuvraj     33            34  Fail
6     Kapil     94            95     O
7     Sunil     55            56     B
8   Sandeep     21            22  Fail
9    Dhawan     84            85    A+
10    Rahul     66            67    B+
11   Bumrah     59            60     B
12   Dravid     49            50     B
13  Ganguly     14            15  Fail
14   Zaheer     81            82    A+
15      VVS     67            68    B+
16   Kumble     69            70    B+
17    Shami     39            40  Fail
18   Hardik     95            96     O
19  Jasprit     71            72     A
```

In [ ]:
```

```