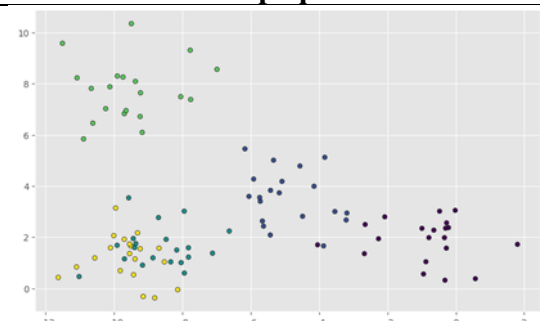
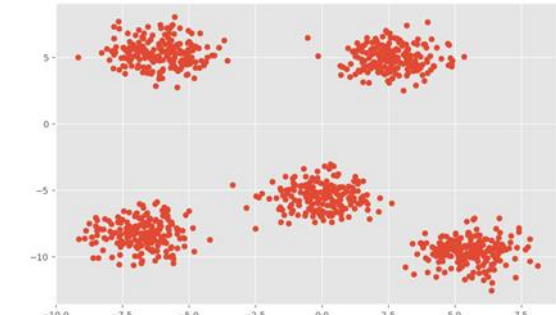
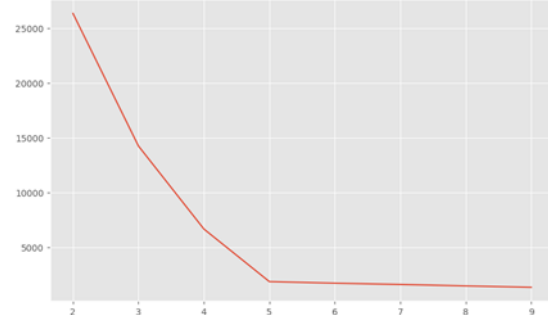
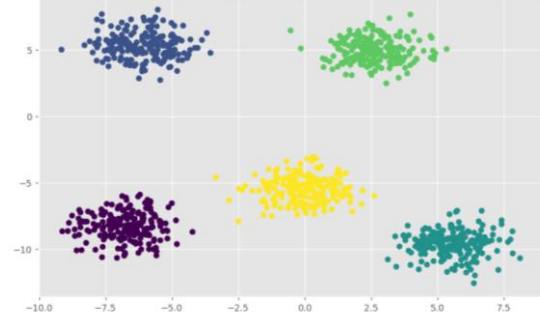
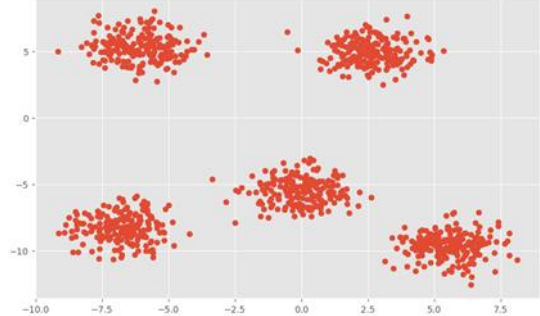
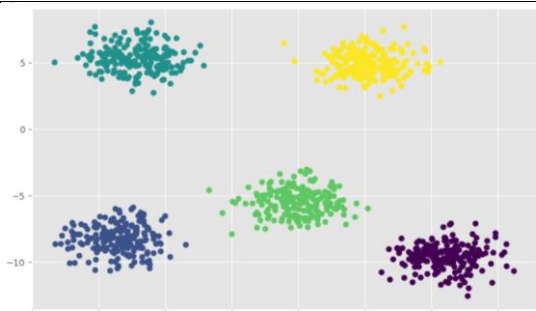
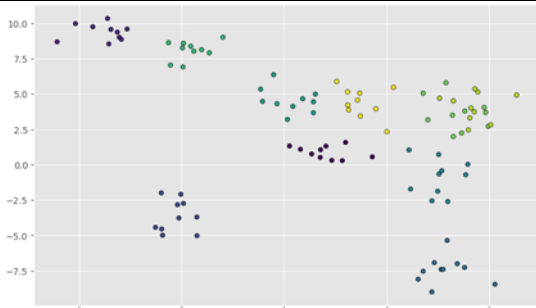
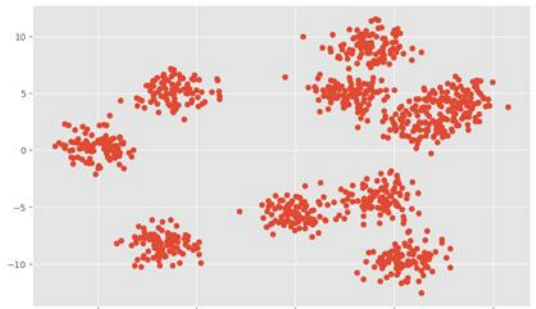
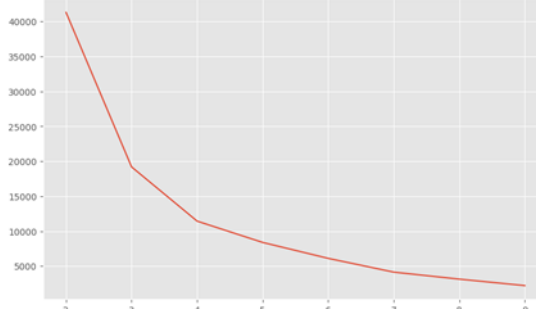
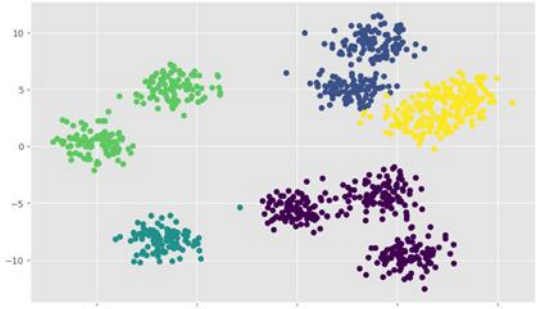
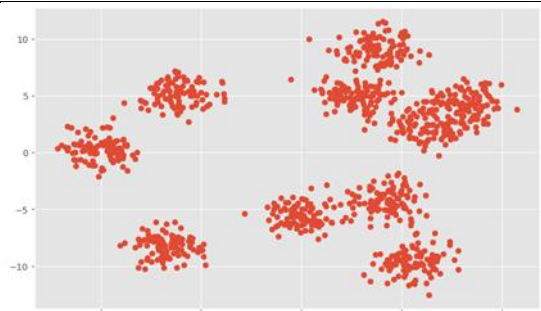
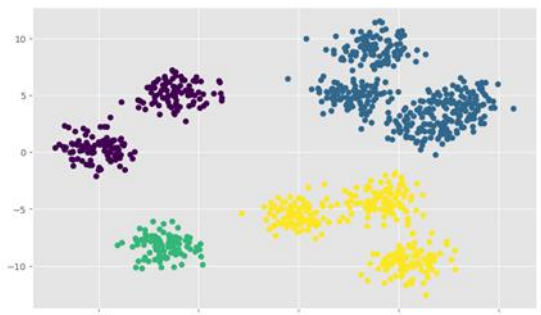
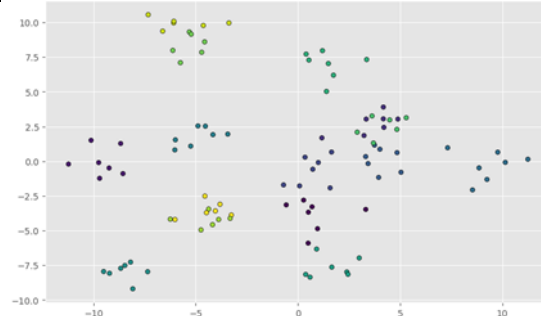
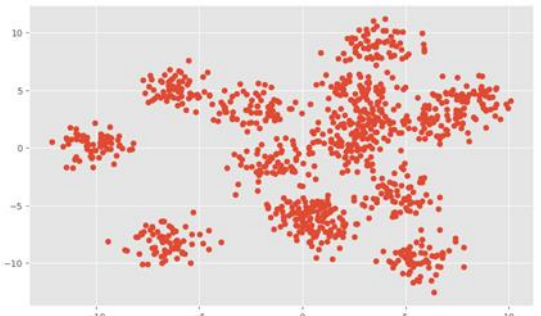
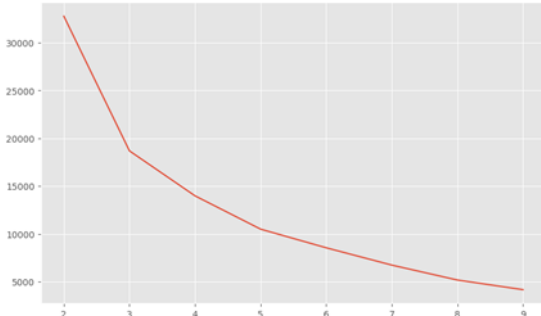
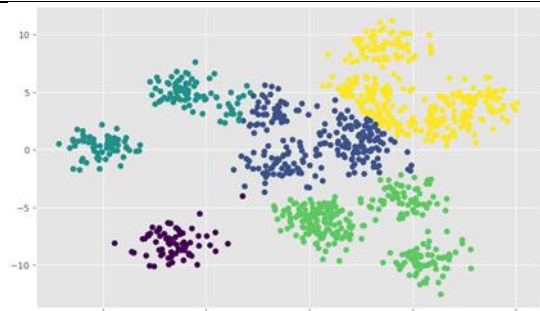
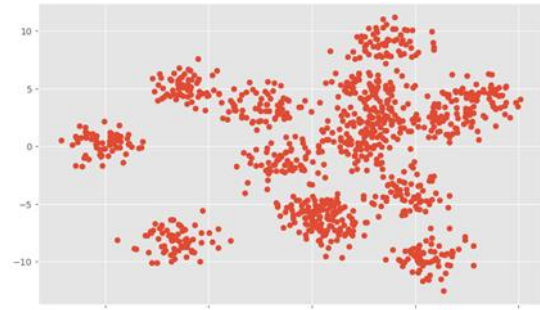
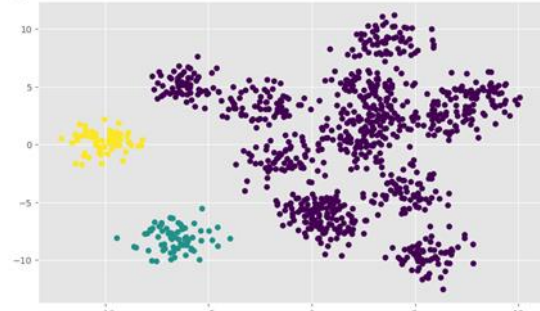
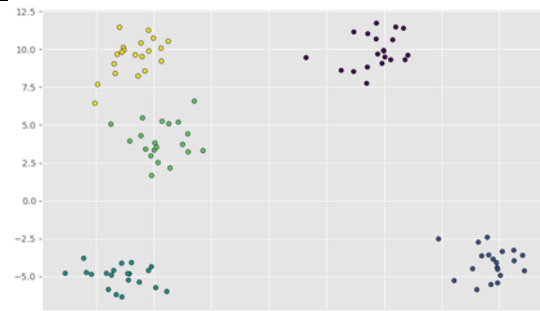
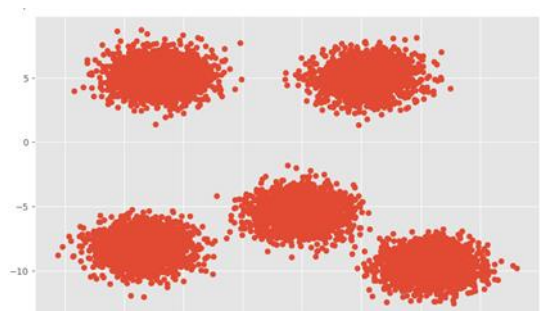


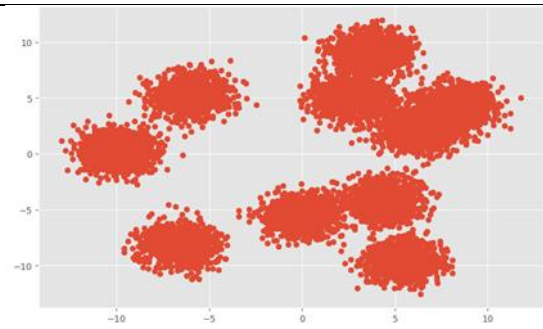
n_samples	centers	график
n_samples=1000	centers=5	<div data-bbox="798 185 1340 504">A scatter plot showing 1000 data points in a 2D space. The points are colored based on their cluster assignment, showing five distinct groups: green, blue, yellow, cyan, and purple. The x-axis ranges from -12 to 2, and the y-axis ranges from 0 to 10.</div> <div data-bbox="750 504 782 537">1.</div> <div data-bbox="798 526 1356 840">A scatter plot showing 1000 data points in a 2D space. The points are colored based on their cluster assignment, showing five distinct groups: red, orange, yellow, green, and blue. The x-axis ranges from -10.0 to 7.5, and the y-axis ranges from -10 to 5.</div> <div data-bbox="750 840 782 873">2.</div> <div data-bbox="798 862 1348 1176">A line plot showing the relationship between a parameter (x-axis, ranging from 2 to 9) and a value (y-axis, ranging from 0 to 25000). The curve starts at approximately (2, 25000) and decreases sharply, leveling off around (5, 1000).</div> <div data-bbox="750 1176 782 1209">3.</div> <div data-bbox="798 1198 1340 1512">A scatter plot showing 1000 data points in a 2D space. The points are colored based on their cluster assignment, showing five distinct groups: blue, green, yellow, orange, and red. The x-axis ranges from -10.0 to 7.5, and the y-axis ranges from -10 to 5.</div> <div data-bbox="750 1512 782 1545">4.</div> <div data-bbox="798 1534 1340 1848">A scatter plot showing 1000 data points in a 2D space. The points are colored based on their cluster assignment, showing five distinct groups: red, orange, yellow, green, and blue. The x-axis ranges from -10.0 to 7.5, and the y-axis ranges from -10 to 5.</div> <div data-bbox="750 1848 782 1881">5.</div>

		<div>6.</div> 
n_samples=1000	centers=10	<div>1.</div>  <div>2.</div>  <div>3.</div>  <div>4.</div> 

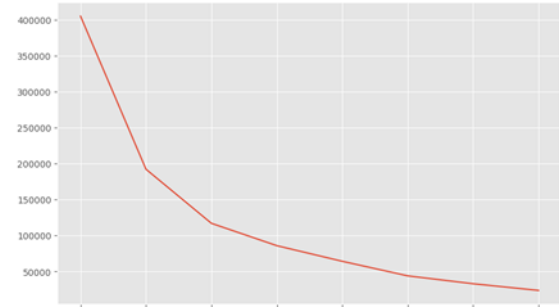
		<div>5.</div>  <div>6.</div> 
n_samples=1000	centers=15	<div>1.</div>  <div>2.</div>  <div>3.</div> 

		<div>4.</div>  <div>5.</div>  <div>6.</div> 
n_samples=10000	centers=5	<div>1.</div>  <div>2.</div> 

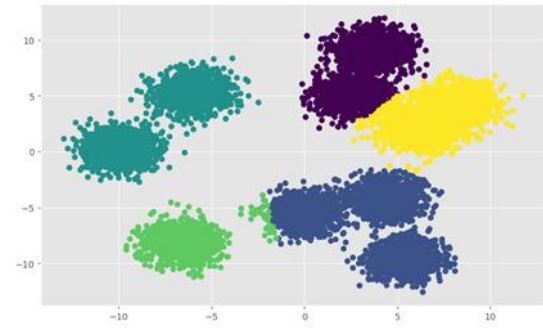
		<div data-bbox="805 150 1364 459"> <p>A line plot with a red line on a light gray grid. The x-axis ranges from 2 to 9, and the y-axis ranges from 0 to 250,000. The line starts at approximately (2, 250,000) and decreases sharply, leveling off around (5, 20,000) and continuing to (9, 15,000).</p> </div> <div data-bbox="754 459 782 492">3.</div> <div data-bbox="805 481 1364 795"> <p>A scatter plot with 10 distinct clusters of points on a light gray grid. The x-axis ranges from -10.0 to 10.0, and the y-axis ranges from -10 to 5. The clusters are colored: blue (top left), green (top right), purple (center), yellow (bottom right), and green (bottom left).</p> </div> <div data-bbox="754 795 782 828">4.</div> <div data-bbox="805 817 1364 1131"> <p>A scatter plot with 10 distinct clusters of points on a light gray grid. The x-axis ranges from -10.0 to 10.0, and the y-axis ranges from -10 to 5. All clusters are colored red.</p> </div> <div data-bbox="754 1131 782 1164">5.</div> <div data-bbox="805 1142 1364 1456"> <p>A scatter plot with 10 distinct clusters of points on a light gray grid. The x-axis ranges from -10.0 to 10.0, and the y-axis ranges from -10 to 5. The clusters are colored: yellow (top left), green (top right), purple (center), and purple (bottom).</p> </div> <div data-bbox="754 1456 782 1489">6.</div>
n_samples=10000	centers=10	<div data-bbox="805 1489 1364 1803"> <p>A scatter plot with 10 distinct clusters of points on a light gray grid. The x-axis ranges from -10 to 10, and the y-axis ranges from -10.0 to 10.0. The clusters are colored: yellow (top right), green (top left), purple (center), and purple (bottom).</p> </div> <div data-bbox="754 1803 782 1836">1.</div>



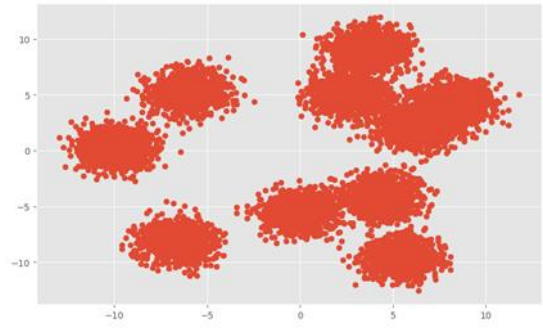
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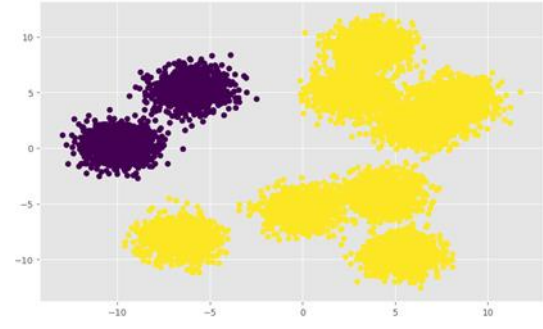
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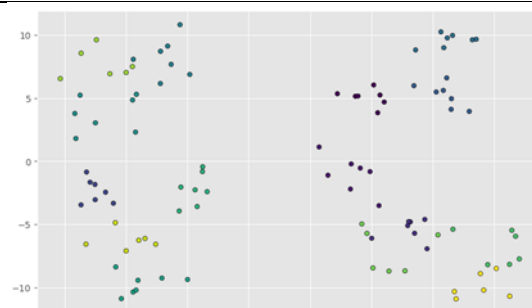


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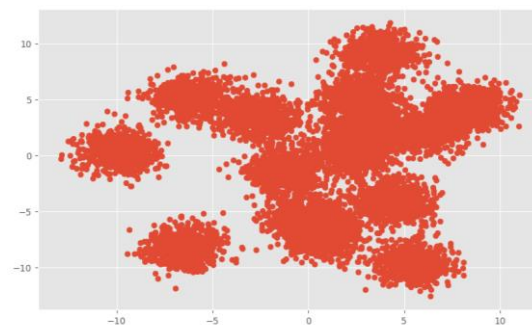
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centers=15

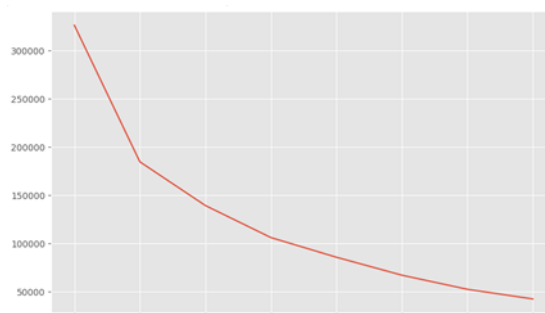
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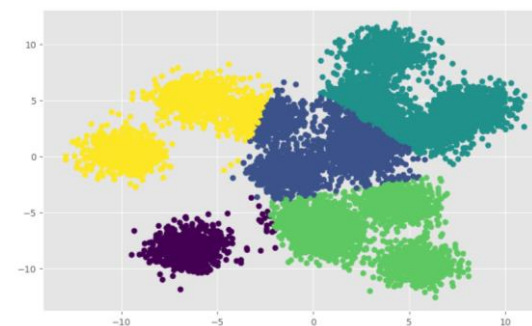
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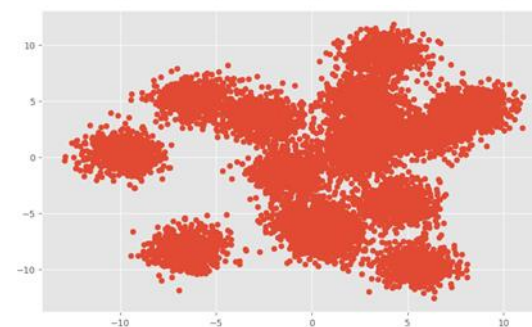
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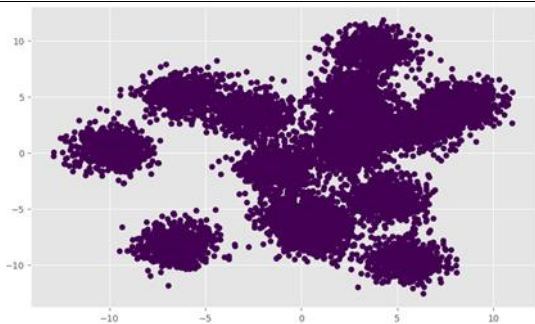
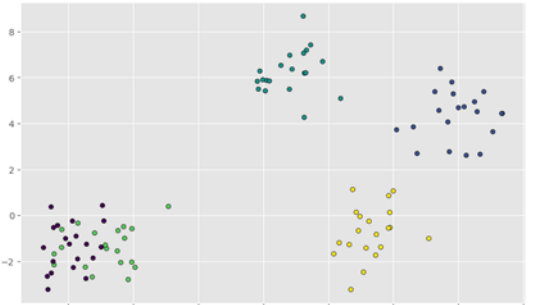
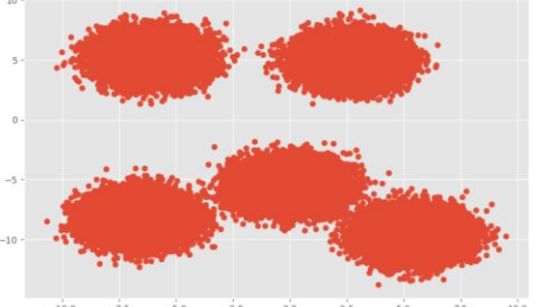
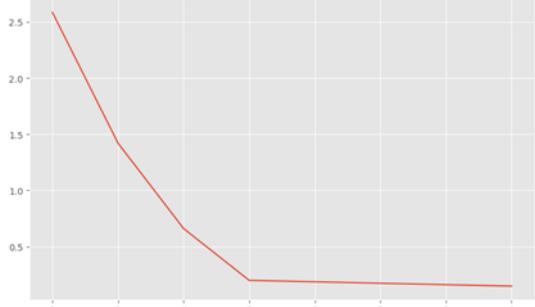
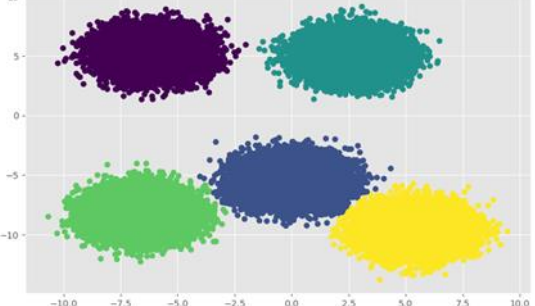


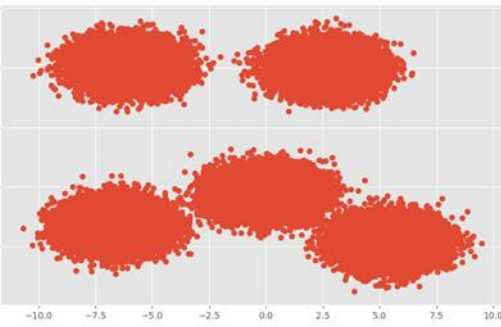
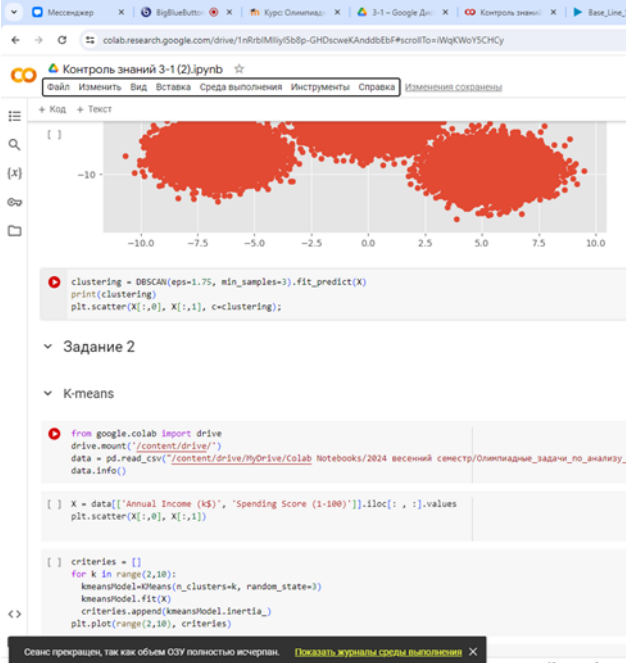
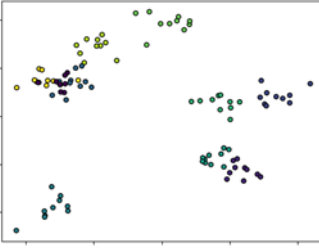
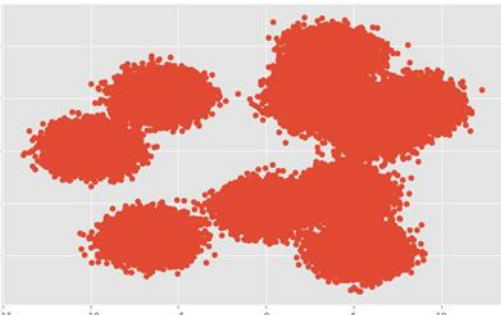
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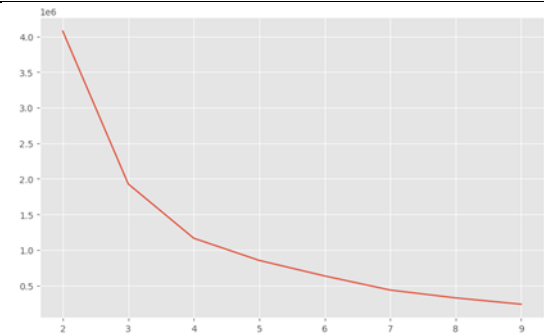
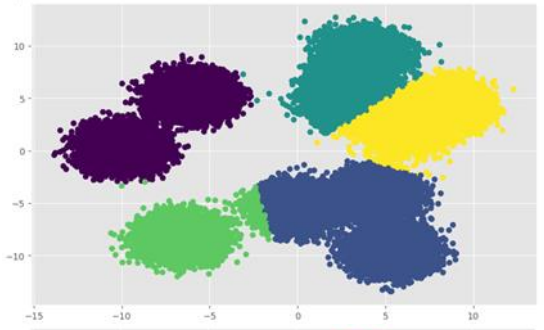
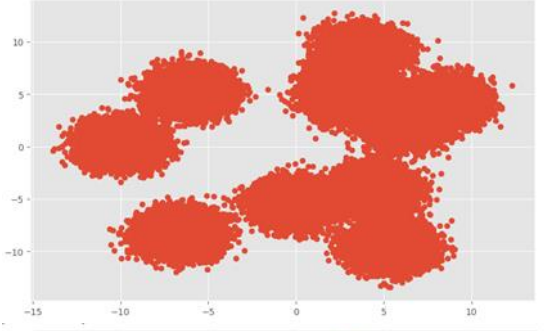
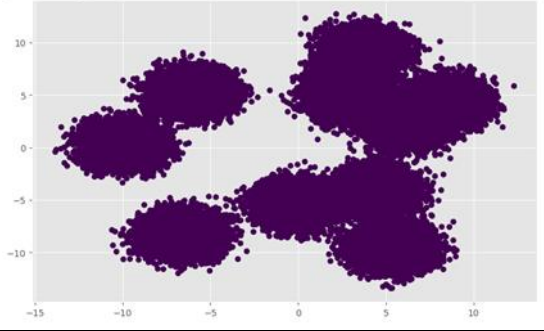
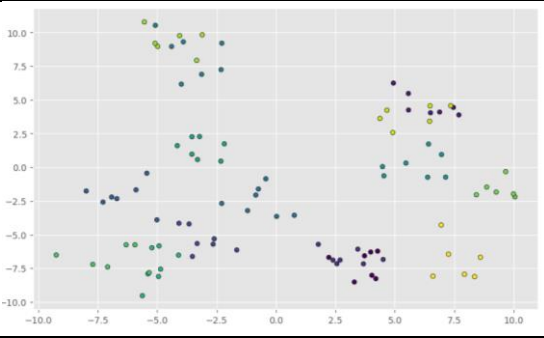


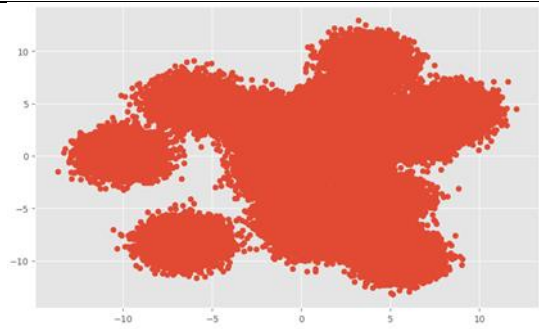
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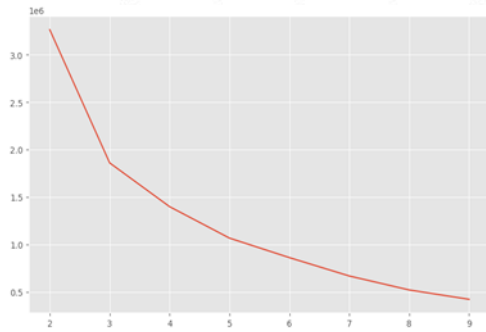
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n_samples=100000	centers=5	<div data-bbox="754 454 778 488">6.</div> <div data-bbox="810 488 1347 792"></div> <div data-bbox="754 792 778 826">1.</div> <div data-bbox="810 826 1347 1131"></div> <div data-bbox="754 1131 778 1164">2.</div> <div data-bbox="810 1164 1347 1469"></div> <div data-bbox="754 1469 778 1503">3.</div> <div data-bbox="810 1503 1347 1807"></div> <div data-bbox="754 1807 778 1841">4.</div>

		<div data-bbox="754 465 778 499">5.</div> <div data-bbox="805 150 1433 1153"> <pre>clustering = DBSCAN(eps=1.75, min_samples=3).fit_predict(X) print(clustering) plt.scatter(X[:,0], X[:,1], c=clustering);</pre><p>Задание 2</p><p>K-means</p><pre>from google.colab import drive drive.mount('/content/drive/') data = pd.read_csv("/content/drive/MyDrive/Colab Notebooks/2024 весенний семестр/Олимпиадные задачи по анализу данных/data.info") X = data[['Annual Income (k\$)', 'Spending Score (1-100)']].iloc[:, :].values plt.scatter(X[:,0], X[:,1]) criteria = [] for k in range(2,10): kmeansModel = KMeans(n_clusters=k, random_state=3) kmeansModel.fit(X) criteria.append(kmeansModel.inertia_) plt.plot(range(2,10), criteria)</pre></div>
n_samples=100000	centers=10	<div data-bbox="754 1167 778 1200">6.</div> <div data-bbox="754 1442 778 1476">1.</div> <div data-bbox="754 1771 778 1805">2.</div> <div data-bbox="805 1198 1340 1780"> </div>

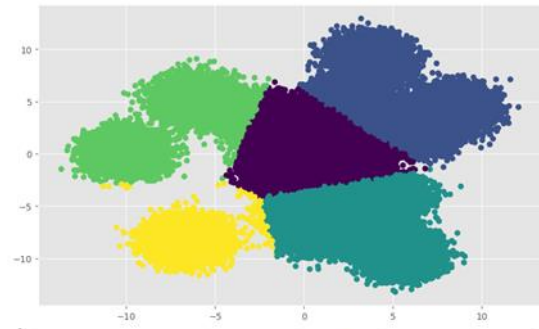
		<div>3.</div>  <p>A line plot with a red line on a light gray grid. The x-axis ranges from 2 to 9, and the y-axis ranges from 0.5 to 4.0 with a multiplier of 1e6 at the top. The line starts at approximately (2, 4.0) and decreases to approximately (9, 0.2).</p>
		<div>4.</div>  <p>A scatter plot with 15 clusters of points in various colors (purple, teal, yellow, green, blue) on a light gray grid. The x-axis ranges from -15 to 10, and the y-axis ranges from -10 to 10.</p>
		<div>5.</div>  <p>A scatter plot with 15 clusters of points, all colored red, on a light gray grid. The x-axis ranges from -15 to 10, and the y-axis ranges from -10 to 10.</p>
		<div>6.</div>  <p>A scatter plot with 15 clusters of points, all colored purple, on a light gray grid. The x-axis ranges from -15 to 10, and the y-axis ranges from -10 to 10.</p>
n_samples=100000	centers=15	<div>1.</div>  <p>A scatter plot with 15 points in various colors (green, blue, yellow) on a light gray grid. The x-axis ranges from -10.0 to 10.0, and the y-axis ranges from -10.0 to 10.0.</p>



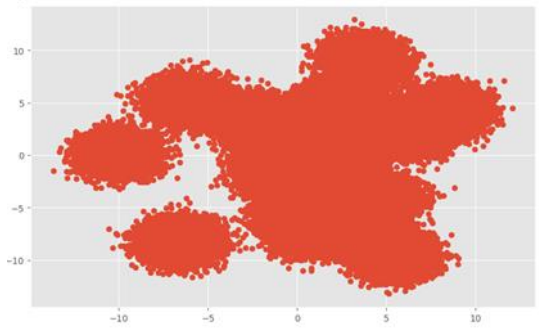
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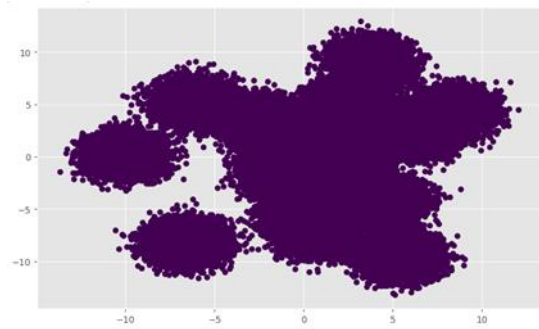
3.



4.



5.



6.