I

Preliminary

...
2

Algorithm for the Matrix Multiplication

and

output

\[
(\sum_{i=1}^{n} a_{ij} b_{jk}) = (c_{ij})
\]

\[
\begin{align*}
& a_{ij} \times b_{jk} = c_{ij} \\
& \text{for } i = 1 \text{ to } m \\
& \text{do for } j = 1 \text{ to } n \\
& \text{end for}
\end{align*}
\]

Next:

charge of Program U in matrix multiplication

or

end

output

\[
(\sum_{i=1}^{n} a_{ij} b_{jk}) = (c_{ij})
\]

\[
\begin{align*}
& a_{ij} \times b_{jk} = c_{ij} \\
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& \text{end for}
\end{align*}
\]

Next:

charge of Program U in matrix multiplication
Table 2: Analysis of the Système Plasmatique and Its P/F Variability

<table>
<thead>
<tr>
<th>Condition</th>
<th>5.68 P/F</th>
<th>12.7 P/F</th>
<th>1.97 P/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>V=I</td>
<td>0.1402</td>
<td>0.3246</td>
<td>0.0526</td>
</tr>
<tr>
<td>V=I+1</td>
<td>0.1513</td>
<td>0.3325</td>
<td>0.0542</td>
</tr>
<tr>
<td>V=I+2</td>
<td>0.1624</td>
<td>0.3404</td>
<td>0.0558</td>
</tr>
</tbody>
</table>

Note: The table shows the variability of the Système Plasmatique under different conditions. The P/F ratio varies significantly depending on the condition. The data suggests a trend where the P/F ratio increases with an increase in condition index.
Theorem 1: Given a positive integer $n$, let $G$ be a graph on $n$ vertices. If $G$ has a Hamiltonian cycle, then the clique number of $G$ is at least $n/2$.

Proof: Let $C$ be a Hamiltonian cycle in $G$. Consider the edge set $E(C)$ of $C$. Since $C$ is a cycle, $E(C)$ contains $n$ edges. Each edge in $E(C)$ is incident to exactly two vertices in $G$. Therefore, the number of vertices in $G$ is at least $n$. Since we are given that $G$ has a Hamiltonian cycle, the clique number of $G$ is at least $n/2$.

Corollary 2: If $G$ is a graph with clique number $q$, then $G$ has a Hamiltonian cycle if and only if $q = n/2$ and $G$ is connected.

Proof: If $G$ has a Hamiltonian cycle, then the clique number of $G$ is $n/2$ and $G$ is connected. Conversely, if $G$ has clique number $n/2$, then $G$ is connected. If $G$ has a Hamiltonian cycle, then we can construct a clique of size $n/2$ by taking the vertices of the cycle and connecting them with edges to form a cycle of size $n/2$. Therefore, $G$ has a Hamiltonian cycle if and only if $q = n/2$ and $G$ is connected.