Given an alphabet α and a pattern P, we need to know where α appears in P.

This information is contained in a vector $\Sigma(\alpha)$

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$$\Sigma(\alpha)$$
 which is defined as follows:
 $\Sigma(\alpha)[i]=1$ if $n=\alpha$

 $\Sigma(\alpha)[i]=1$ if $p_i=\alpha$.

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$$(\alpha)[i]=1$$
 if $p_i=\alpha$.
 $(\alpha)[i]=0$ if otherwise.

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$$\alpha$$
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ample: P : aabac

Example:
$$P$$
: aabac (a) = (1 1 0 1 0)

Example:
$$P$$
: aabac $\Sigma(a) = (1,1,0,1,0)$

 $\Sigma(a) = (1,1,0,1,0)$

 $\Sigma(b) = (0,0,1,0,0)$ $\Sigma(c) = (0,0,0,0,1)$