Ctrl + S

```julia
using PlutoUI
```

```julia
@bind strands TextField() ### User input
```

strand = ["""]

```julia
strand = split(strands, "") ### split the string
```

extract_codon (generic function with 1 method)

```julia
function extract_codon(strand)
    for codon in [strand]
        return codon
    end
end

### extract each codon
```

check_codon (generic function with 1 method)

```julia
function check_codon(strand)
    DNA_codons = ["A", "a", "T", "t", "C", "c", "G", "g"]
    test = (extract_codon(strand) .∈ [DNA_codons])
    if false in test
        return ("These are not DNA codons")
    else
        return strand
    end
end

### check if they are DNA codons
```

reverse_upper (generic function with 1 method)

```julia
function reverse_upper(strand)
    Reverse_DNA = Dict([("A","T"),("a","t"),("T","A"),("C","G"),("G","C"),
    ("t","a"), ("c","g"), ("g","c")])
    if check_codon(strand) == "These are not DNA codons"
        return("Invalid upper strand")
    else
        new_strand =[]
        for codon in strand
            if codon in keys(Reverse_DNA)
                codon = Reverse_DNA[codon]
                append!(new_strand, codon)
            end
        end
        return new_strand
    end
end

# Reverse the DNA codons
```

dsDNA (generic function with 1 method)

```
• begin
•     function dsDNA(strand)
•         upper =  join(check_codon(strand))
•         lower = join(reverse_upper(strand))
•         return (("Upper strand: ")* upper * "\n" *("Lower strand: ") * lower )
•     end
• end
```

```
Upper strand: These are not DNA codons
Lower strand: Invalid upper strand
```

```
• dsDNA(strand) |> Text
•
• ### Original infix operator
```

_dsDNA (generic function with 1 method)

```
• function _dsDNA()
•     DNA = split(dsDNA(strand), "\n")
•     upper = DNA[1]
•     lower = DNA[2]
•     return [upper, lower]
• end
```

JPrint (generic function with 1 method)

```
• function JPrint(args...)
•     dummy = """"""
•     for arg in args
•         dummy *= arg*"\n"
•     end
•     Print(dummy)
• end
•
• ### I found this function online
• ### From: https://discourse.julialang.org/t/plutoui-print-only-prints-last-line-how-
•     can-i-make-it-print-normally/65979
```

--> (generic function with 1 method)

```
• -->(x, y) = JPrint(x, y)
```

```
Upper strand: These are not DNA codons
Lower strand: Invalid upper strand
```

```
• -->(_dsDNA()[1],_dsDNA()[2])
```