Entry point   IT082-083-084 DFA

0

' ① return (sep)

? ② return (EOL)

[\t] ③ return (cos)

m ④ a ⑤ t ⑥ h ⑦ i ⑧
return (mathi)

o ⑨ t ⑩ o ⑪ return (moto)

a ⑫ n ⑬ e ⑭ return (ane)

n ⑮ a ⑯ n ⑰ o ⑱ return (nono)

u ⑲ m ⑳ b ㉑ e ㉒ r ㉓
return number

b ㉔ a ㉕ n ㉖ e ㉗ return (bane)

s ㉘ a ㉙ r ㉚ k ㉛ h ㉜ a ㉝
return (sarka)

h ㉞ u ㉟ return (shu)

c ㊱ h ㊲ e ㊳ return (che)

k ㊴ a ㊵ y ㊶ o ㊷ return (kayo)

[0-9] [0-9] [0-9]
[0-9] ㊸ . ㊹ other ㊺ return (float)

other

㊻ return (int)

㊼ return (reject) // error

Algorithm:

```c
#include <stdio.h>

int main()
{
    int state = 0;

    char ch = getchar();

    while (true)
    {
        switch (state)
        {
        case 0:
            ch = getchar();
            switch (ch)
            {
            case ',':
            {
                state = 1;
                ch = getchar();
                break;
            }

            case '?':
            {
                state = 2;
                ch = getchar();
                break;
            }
            case '\t':
            {
                state = 3;
                ch = getchar();
                break;
            }
            case 'm':
            {
                state = 4;
                ch = getchar();
                break;
            }
```

```
case 'a':
{
    state = 12;
    ch = getchar();
    break;
}
case 'n':
{
    state = 15;
    ch = getchar();
    break;
}
case 'b':
{
    state = 24;
    ch = getchar();
    break;
}
case 's':
{
    state = 28;
    ch = getchar();
    break;
}
case 'c':
{
    state = 36;
    ch = getchar();
    break;
}
case 'k':
{
    state = 39;
    ch = getchar();
    break;
}
case '0...9' {
    state = 43;
    ch = getchar();
    break;
} default:
{
    state = 47;
}
}
```

```c
            break;
        }

    case 1:
    {
        return sep; // sep=seperator i.e ','
    }

    case 2:
    {
        return EOL; // EOL=End Of Line i.e '?'
    }

    case 3:
    {
        return ws; // ws=whitespace i.e '\t'
    }

    case 4:
    {
        ch = getchar();
        if (ch == 'a')
        {
            state = 5;
        }
        else if (ch == 'o')
        {
            state = 9;
        }
        else
        {
            state = 47;
        }
    }

    case 5:
    {
        ch = getchar();
        if (ch == 't')
        {
            state = 6;
        }
        else
        {
            state = 47;
```

```c
        }
    }

    case 6:
    {
        ch = getchar();
        if (ch == 'h')
        {
            state = 7;
        }
        else
        {
            state = 47;
        }
    }

    case 7:
    {
        ch = getchar();
        if (ch == 'i')
        {
            state = 8;
        }
        else
        {
            state = 47;
        }
    }

    case 8:
    {
        return "mathi";
    }

    case 9:
    {
        ch = getchar();
        if (ch == 't')
        {
            state = 10;
        }
        else
        {
            state = 47;
        }
```

```c
        }

    case 10:
    {
        ch = getchar();
        if (ch == 'o')
        {
            state = 11;
        }
        else
        {
            state = 47;
        }
    }

    case 11:
    {
        return "moto";
    }

    case 12:
    {
        ch = getchar();
        if (ch == 'n')
        {
            state = 13;
        }
        else
        {
            state = 47;
        }
    }

    case 13:
    {
        ch = getchar();
        if (ch == 'e')
        {
            state = 14;
        }
        else
        {
            state = 47;
        }
    }
```

```
case 14:
{
    return "ane";
}

case 15:
{
    ch = getchar();
    if (ch == 'a')
    {
        state = 16;
    }
    else if (ch == 'u')
    {
        state = 19;
    }
    else
    {
        state = 47;
    }
}

case 16:
{
    ch = getchar();
    if (ch == 'n')
    {
        state = 17;
    }
    else
    {
        state = 47;
    }
}

case 17:
{
    ch = getchar();
    if (ch == 'o')
    {
        state = 18;
    }
    else
    {
```

```
                state = 47;
        }
    }

    case 18:
    {
        return "nano";
    }

    case 19:
    {
        ch = getchar();
        if (ch == 'm')
        {
            state = 20;
        }
        else
        {
            state = 47;
        }
    }

    case 20:
    {
        ch = getchar();
        if (ch == 'b')
        {
            state = 21;
        }
        else
        {
            state = 47;
        }
    }

    case 21:
    {
        ch = getchar();
        if (ch == 'e')
        {
            state = 22;
        }
        else
        {
            state = 47;
```

```c
            }
        }

        case 22:
        {
            ch = getchar();
            if (ch == 'r')
            {
                state = 23;
            }
            else
            {
                state = 47;
            }
        }

        case 23:
        {
            return "number";
        }

        case 24:
        {
            ch = getchar();
            if (ch == 'a')
            {
                state = 25;
            }
            else
            {
                state = 47;
            }
        }

        case 25:
        {
            ch = getchar();
            if (ch == 'n')
            {
                state = 26;
            }
            else
            {
                state = 47;
            }
```

```
        }

    case 26:
    {
        ch = getchar();
        if (ch == 'e')
        {
            state = 27;
        }
        else
        {
            state = 47;
        }
    }

    case 27:
    {
        return "bane";
    }

    case 28:
    {
        ch = getchar();
        if (ch == 'a')
        {
            state = 29;
        }
        else if (ch == 'h')
        {
            state = 34;
        }
        else
        {
            state = 47;
        }
    }

    case 29:
    {
        ch = getchar();
        if (ch == 'r')
        {
            state = 30;
        }
        else
```

```c
        {
            state = 47;
        }
    }

case 30:
{
    ch = getchar();
    if (ch == 'k')
    {
        state = 31;
    }
    else
    {
        state = 47;
    }
}

case 31:
{
    ch = getchar();
    if (ch == 'h')
    {
        state = 32;
    }
    else
    {
        state = 47;
    }
}

case 32:
{
    ch = getchar();
    if (ch == 'a')
    {
        state = 33;
    }
    else
    {
        state = 47;
    }
}

case 33:
```

```c
    {
        return "sarkha";
    }

    case 34:
    {
        ch = getchar();
        if (ch == 'u')
        {
            state = 35;
        }
        else
        {
            state = 47;
        }
    }

    case 35:
    {
        return "shu";
    }

    case 36:
    {
        ch = getchar();
        if (ch == 'h')
        {
            state = 37;
        }
        else
        {
            state = 47;
        }
    }

    case 37:
    {
        ch = getchar();
        if (ch == 'e')
        {
            state = 38;
        }
        else
        {
            state = 47;
```

```c
        }
    }

case 38:
{
    return "che";
}

case 39:
{
    ch = getchar();
    if (ch == 'a')
    {
        state = 40;
    }
    else
    {
        state = 47;
    }
}

case 40:
{
    ch = getchar();
    if (ch == 'y')
    {
        state = 41;
    }
    else
    {
        state = 47;
    }
}

case 41:
{
    ch = getchar();
    if (ch == 'o')
    {
        state = 42;
    }
    else
    {
        state = 47;
    }
```

```
        }

    case 42:
    {
        return "kayo";
    }

    case 43:
    {
        ch = getchar();
        if (ch == '0...1')
        {
            state = 43;
        }
        else if (ch == '.')
        {
            state = 44;
        }
        else if (ch == 'other')
        {
            state = 46;
        }
        else
        {
            state = 47;
        }
    }

    case 44:
    {
        ch = getchar();
        if (ch == '0...1')
        {
            state = 44;
        }
        else if (ch == 'other')
        {
            state = 45;
        }
        else
        {
            state = 47;
        }
    }
```

```cpp
            case 45:
            {
                return float;
            }

            case 46:
            {
                return int;
            }

            case 47:
            {
                cout << "error";
            }
        }
```