

Object-Oriented Programming

Event States

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Sum of Numbers

```
/*  
    Sum.cpp  
    Sum all the input numbers  
*/  
  
#include <iostream>  
  
int main() {  
  
    // sum up all the numbers  
    int n;  
    int sum = 0;  
    while (std::cin >> n) {  
        // add the input number  
        sum += n;  
    }  
  
    // output the sum  
    std::cout << sum << '\n';  
  
    return 0;  
}
```

```
/*  
    Sum.cpp  
    Sum all the input numbers  
*/  
  
#include <iostream>  
#include <string>  
  
int main() {  
  
    // sum up all the numbers  
    int sum = 0;  
    std::string s;  
    while (std::cin >> s) {  
        // add the converted input number  
        int n = std::stoi(s);  
        sum += n;  
    }  
  
    // output the sum  
    std::cout << sum << '\n';  
  
    return 0;  
}
```

Stop at Minus Sign

```
/*  
    Sum.cpp  
    Sum up the numbers in the input  
    Ignore any numbers after a minus sign  
*/  
  
#include <iostream>  
#include <string>  
  
int main() {  
  
    // sum up all the numbers  
    int sum = 0;  
    std::string s;  
    while (std::cin >> s) {  
        // stop at minus sign  
        if (s == "-")  
            break;  
  
        // add the converted input number  
        int n = std::stoi(s);  
        sum += n;  
    }  
  
    // output the sum  
    std::cout << sum << '\n';  
  
    return 0;  
}
```

Ignore Single Number After Minus Sign

```
/*
   Sum.cpp
   Sum up the numbers in the input
   Ignore a number if preceded by a minus sign
*/

#include <iostream>
#include <string>

int main() {

    // sum up all the numbers
    int sum = 0;
    std::string s;
    while (std::cin >> s) {
        // ignore next number when minus sign
        if (s == "-") {
            // NOTE: Does not handle errors correctly
            std::cin >> s;
            std::cin >> s;
        }

        // add the converted input number
        int n = std::stoi(s);
        sum += n;
    }

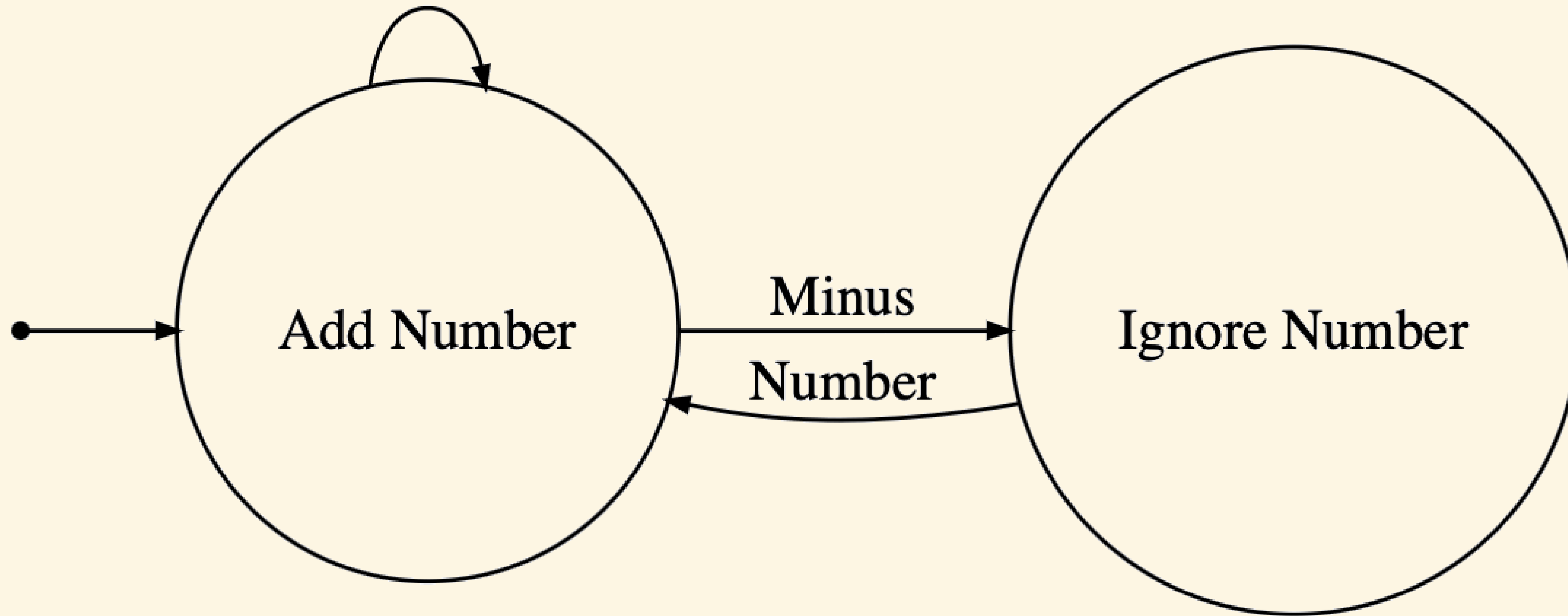
    // output the sum
    std::cout << sum << '\n';

    return 0;
}
```

State Diagram

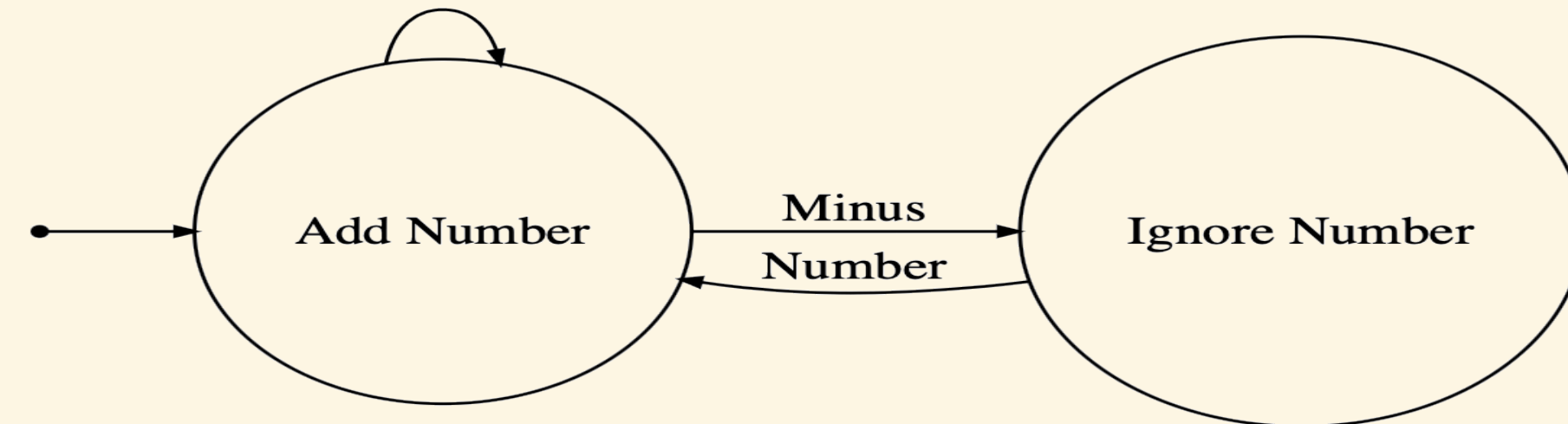
State Diagram: Skip Number After Minus

Number | add Number



Using States

State Diagram: Skip Number After Minus
Number | add Number



```
/*  
  Sum.cpp  
  Sum up the numbers in the input  
  Ignore a number if preceded by a minus sign  
*/  
  
#include <iostream>  
#include <string>  
  
int main() {  
  
  // sum up all the numbers  
  int sum = 0;  
  bool ignoreNumber = false;  
  std::string s;  
  while (std::cin >> s) {  
  
    if (!ignoreNumber) {  
  
      if (s == "-") {  
        // start add input  
        ignoreNumber = true;  
      } else {  
        // add the converted input number  
        int n = std::stoi(s);  
        sum += n;  
      }  
  
    } else if (ignoreNumber) {  
  
      ignoreNumber = false;  
    }  
  }  
  
  // output the sum  
  std::cout << sum << '\n';  
  
  return 0;  
}
```

Using States

```
/*
   Sum.cpp
   Sum up the numbers in the input
   Ignore a number if preceded by a minus sign
*/

#include <iostream>
#include <string>

int main() {

    // sum up all the numbers
    int sum = 0;
    bool ignoreNumber = false;
    std::string s;
    while (std::cin >> s) {

        if (!ignoreNumber) {

            if (s == "-") {
                // start add input
                ignoreNumber = true;
            } else {
                // add the converted input number
                int n = std::stoi(s);
                sum += n;
            }

        } else if (ignoreNumber) {

            ignoreNumber = false;
        }

    }

    // output the sum
    std::cout << sum << '\n';

    return 0;
}
```

```
/*
   Sum.cpp
   Sum up the numbers in the input
   Ignore a number if preceded by a minus sign
*/

#include <iostream>
#include <string>

int main() {

    // sum up all the numbers
    int sum = 0;
    bool ignoreNumber = false;
    std::string s;
    while (std::cin >> s) {

        if (ignoreNumber) {
            ignoreNumber = false;
        } else if (s == "-") {
            ignoreNumber = true;
        } else {
            // add the converted input number
            int n = std::stoi(s);
            sum += n;
        }

    }

    // output the sum
    std::cout << sum << '\n';

    return 0;
}
```

```
/*
   Sum.cpp
   Sum up the numbers in the input
   Ignore a number if preceded by a minus sign
*/

#include <iostream>
#include <string>

int main() {

    // sum up all the numbers
    int sum = 0;
    bool ignoreNumber = false;
    std::string s;
    while (std::cin >> s) {

        if (ignoreNumber) {
            ignoreNumber = false;
            continue;
        }

        if (s == "-") {
            ignoreNumber = true;
            continue;
        }

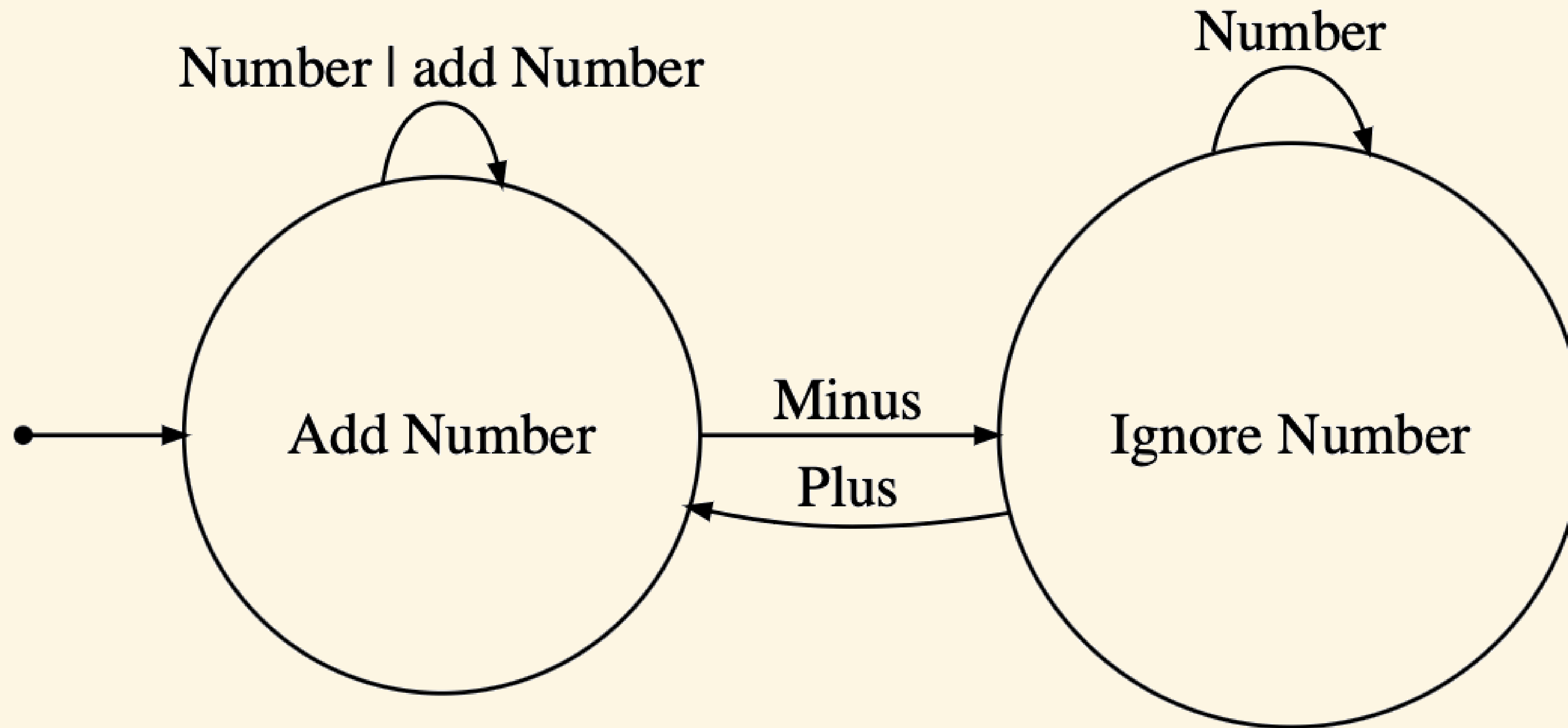
        // add the converted input number
        int n = std::stoi(s);
        sum += n;
    }

    // output the sum
    std::cout << sum << '\n';

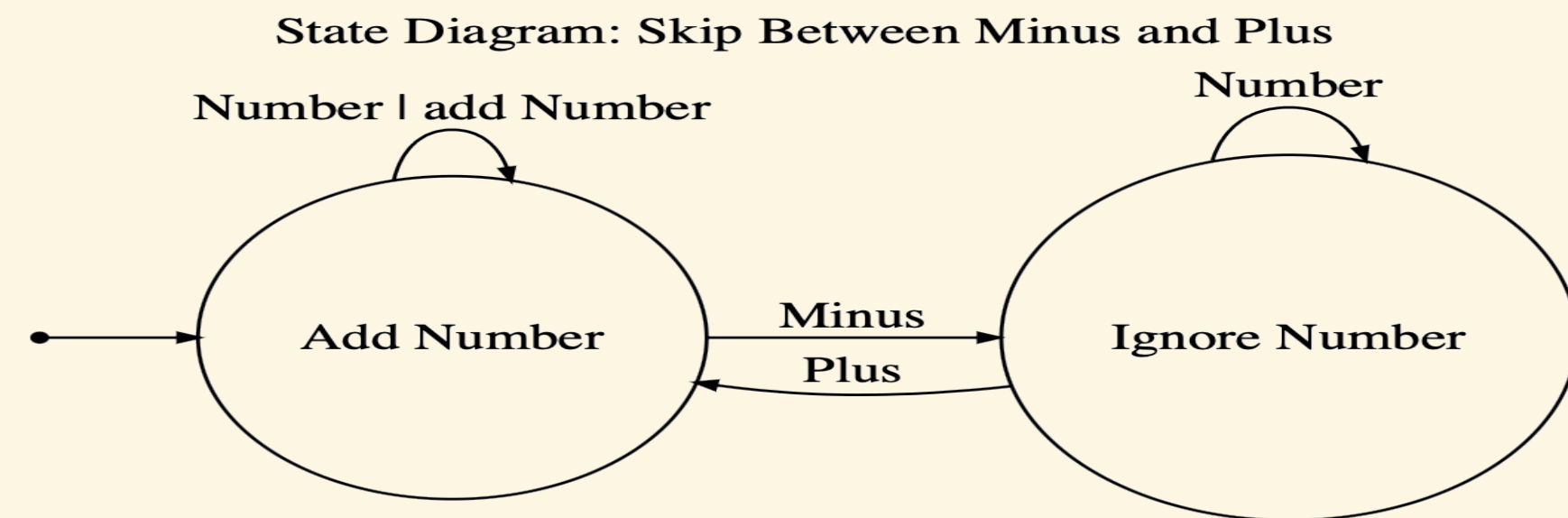
    return 0;
}
```

Ignore Range of Numbers

State Diagram: Skip Between Minus and Plus



Ignore Range of Numbers



```
/*  
    Sum.cpp  
    Sum up the numbers in the input  
    Exclude numbers between '-' and '+'  
*/  
  
#include <iostream>  
#include <string>  
  
int main() {  
  
    // sum up all the numbers  
    int sum = 0;  
    bool inIgnoreNumber = false;  
    std::string s;  
    while (std::cin >> s) {  
  
        if (inIgnoreNumber) {  
            if (s == "+")  
                inIgnoreNumber = false;  
            continue;  
        }  
  
        if (s == "-") {  
            inIgnoreNumber = true;  
            continue;  
        }  
  
        // add the converted input number  
        int n = std::stoi(s);  
        sum += n;  
    }  
  
    // output the sum  
    std::cout << sum << '\n';  
  
    return 0;  
}
```

Ignore Range of Numbers

```
/*
   Sum.cpp
   Sum up the numbers in the input
   Exclude numbers between '-' and '+'
*/

#include <iostream>
#include <string>

int main() {

    // sum up all the numbers
    int sum = 0;
    bool inIgnoreNumber = false;
    std::string s;
    while (std::cin >> s) {

        if (inIgnoreNumber) {

            if (s == "+")
                inIgnoreNumber = false;

        } else if (!inIgnoreNumber) {

            if (s == "-") {

                inIgnoreNumber = true;

            } else {
                // add the converted input number
                int n = std::stoi(s);
                sum += n;
            }
        }
    }

    // output the sum
    std::cout << sum << '\n';

    return 0;
}
```

```
/*
   Sum.cpp
   Sum up the numbers in the input
   Exclude numbers between '-' and '+'
*/

#include <iostream>
#include <string>

int main() {

    // sum up all the numbers
    int sum = 0;
    bool inIgnoreNumber = false;
    std::string s;
    while (std::cin >> s) {

        if (inIgnoreNumber) {
            if (s == "+")
                inIgnoreNumber = false;
            continue;
        }

        if (s == "-") {
            inIgnoreNumber = true;
            continue;
        }

        // add the converted input number
        int n = std::stoi(s);
        sum += n;
    }

    // output the sum
    std::cout << sum << '\n';

    return 0;
}
```