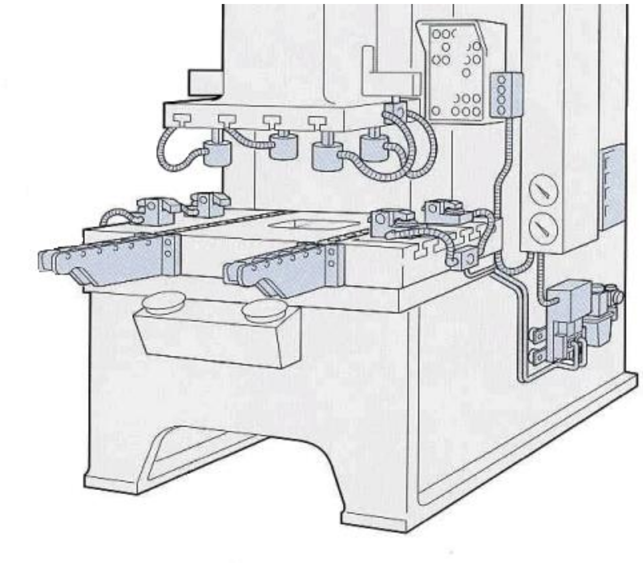
CSCI-511 Object Oriented Programming

Project Materials
Stamping Press

Mall Innovations' Mall Kiosk 3000™



Congratulations on your purchase of the Mall Kiosk 3000!™. You are now part of the Mall Innovations family! A true stamping press, the Mall Kiosk 3000!™will allow you to stamp text messages onto metal plates for your customers in a matter of minutes. Encourage your customers to purchase custom plates with unique stamped messages like "World's Greatest Dad", "World's Greatest Mom", "World's Greatest Grandfather", "World's Greatest Aunt", and "World's Greatest Second-Cousin".
No etching, engraving, or embroidery kiosk is complete without the Mall Kiosk 3000!™. About the size of a large espresso machine, the Mall Kiosk 3000!™can fit on any countertop or next to a display case. Proudly display the Mall Kiosk 3000!™in *your* kiosk and be the envy of the Mall!

WARNING! BE SURE TO WEAR SAFETY HOOD AND CHAINMAIL GLOVES WHEN OPERATING Mall Innovations' Mall Kiosk 3000!™. DO NOT ALLOW METAL PLATES TO COME IN CONTACT WITH SKIN. IF METAL PLATES COME IN CONTACT WITH SKIN, FLUSH WITH WATER FOR 15 MINUTES AND CONTACT A PHYSICIAN.[1]

[1] Mall Innovations is not responsible for disfigurement or decapitation due to improper use of safety equipment or use by persons not certified through Mall Innovations' 26-week training program. Mall Innovations recommends consulting the noise ordinances in your municipality before operating Mall Kiosk 3000!™.

Programming interface for the Mall Kiosk 3000!™

```
// File: stamp.h

namespace stamping_press {
  void set_die(char die);
  char get_die();
  void insert_plate(int cols, int row);
  void eject_plate();
  void stamp(int col, int row);
};
```

`void set_die(char die)` This function takes a character variable matching the desired stamping die that the stamping arm will fetch. The Mall Kiosk 3000!™has dies for upper-case letters, lower-case letters, digits (numbers), and the # and * characters. This function may throw the following exceptions:

> `std::invalid_argument` If a character is sent to the function for which there is no die, or if the character matches the die already selected by the stamping arm.

`char get_die()` This function returns a character representing the die held by the stamping arm. If the arm is not holding a die, 0 is returned. This function will not throw an exception.

`void insert_plate(int cols, int row)` This function will select a plate with a length and width matching the cols and rows arguments passed into the function. This function may throw the following exceptions:

> `std::logic_error` If there is already a plate in the press, this exception will be thrown.

`void eject_plate()` This function will eject a plate that is in the press. This function may throw the following exceptions:

> `std::logic_error` If there is no plate in the press, this exception will be thrown.

`void stamp(int col, int row)` This function will cause the stamping arm to stamp the held die into the metal plate at the specified row and column. This function may throw the following exceptions:

> `std::logic_error` If there is no plate in the press, this exception will be thrown. Also, if there is no die in the stamping arm, this exception is thrown.
>
> `std::out_of_range` If a negative row or column is provided, or if the row or column is larger than the plate size, an out_of_range standard exception is thrown.

Stamping press project instructions

Your task is to create an interface to the Mall Kiosk 3000!™ which is intuitive for a C++ programmer. Specifically, the programmer who uses your code should be able to create a stamped piece of metal by simply creating an output stream and writing to it. For example:

```
int main()
{
  stampstream s(30,10);
  s << "hi th#re planetoid humans" << endrow
    << "  how's all the fish" << row(5) << "one more";
  s << row(4) << "   two more" << 3.1415;
  s << row(8) << "The quick brown fox jumped over the lazy dog's back.";
  s << row(3) << "the end";

  return 0;
}
```

Running the sample code should produce:

```
bash$ ./a.out
/------------------------------\
|hi th#re planetoid humans     |
|  how s all the fish          |
|                              |
|the end                       |
|   two more3 1415             |
|one more                      |
|                              |
|                              |
|The quick brown fox jumped ove|
|                              |
\------------------------------/
```

Your code should inherit from the C++ standard library stream class hierarchy where appropriate.