Summer School on Formal Techniques

Boolean (Un)Satisfiability

Obtaining Class Materials

June, 2022

The labs consist of three C/C++ programs, several Python programs, PDF documents, and some data files.

Available Material

Lectures:

- Lecture 1A: (Un)Satisfiability
- Lecture 1b: Unsatisfiability Proofs
- Lecture 2a: Introduction to BDDs
- Lecture 2a: Proof Generation with BDDs

Labs:

- Obtaining Lab Materials
- Lab 1
- Lab 2
- Lab 1 Solution
- Lab 2 Solution

Setting up Labs

Via Github

You must have the `git` progam installed on your machine.

```
git clone https://github.com/rebryant/unsat-tutorial
cd unsat-tutorial
make install
```

Via Dockerhub

You must have the `docker` program installed on your machine.

```
docker pull randalbryant/ssft22
docker run -it randalbryant/ssft22 bash
login ssft22 (Password = ssft22)
cd unsat-tutorial
```

Saving your Docker Container

The above `docker run` command creates and runs a *container* based on the specified Docker *image*. If you exit the shell on your docker container,[1] any changes you have made to files would normally be lost. Instead you must `commit` your container, but you can't commit back to the version on Dockerhub.

Instead, you should commit to a local container. You should do this before you exit the shell. Here's the procedure:

1. In a separate terminal window run the command:

   ```
   docker ps
   ```

   to see the list of running containers. It will look something like the following:

   ```
   CONTAINER ID   IMAGE                 COMMAND   CREATED
   16640d5ce162   randalbryant/ssft22   "bash"    8 minutes ago
   5836b1b74ccf   gcc:latest            "bash"    6 hours ago
   ```

2. Perform a commit using the hexadecimal Container Id:

   ```
   docker container commit 16640d5ce162 ssft22_local
   ```

[1] Actually, you need to exit twice—once from your user login and once from the shell.

You now exit the container shell.

3. You can later pick up where you left off at by executing

   ```
   docker run -it ssft22_local bash
   ```

   and login again.