



Examination Answer Booklet

To be filled by Student before completing the Examination

STUDENT ID NUMBER...**073-162..BOTRUS..DABI..ANIKPARA**

DEGREE/DIPLOMA/CERTIFICATE FOR WHICH THE CANDIDATE IS REGISTERED

e.g. BBA,BPH,BIRDS,LLB,BIT:...**BSE**.....

YEAR OF STUDY.....**TWO**.....

MODULE CODE.....**BSE212**.....

MODULE NAME...**PRINCIPLES...OF...SOFTWARE...ENGINEERING**.....

SEMESTER.....**THREE**.....

VERY IMPORTANT

1. Only your student ID No. and not your Name should be typed on the answer booklet.
2. Ensure that you have typed your Student ID No, Module code and Module name correctly since any mistake may result into misallocation of results /marks /grades.

INSTRUCTIONS FOR THE ONLINE EXAMINATION

1. Save the Answer Booklet with the following name format:
2. [module code] [your SID number] Answer Booklet.
3. Example: LLB225 - 012345 Answer Booklet.
4. Write the answer to each question on a new page of the document.
5. Write the question number at the start of each question.
6. Remember to save the document regularly while you are working on it.
7. When you have finished typing your answers into the Answer Booklet, check your work and then save.
8. Submit your Answer booklet by uploading it to Cavendish University Learning Platform -Claned.

QUESTION ONE

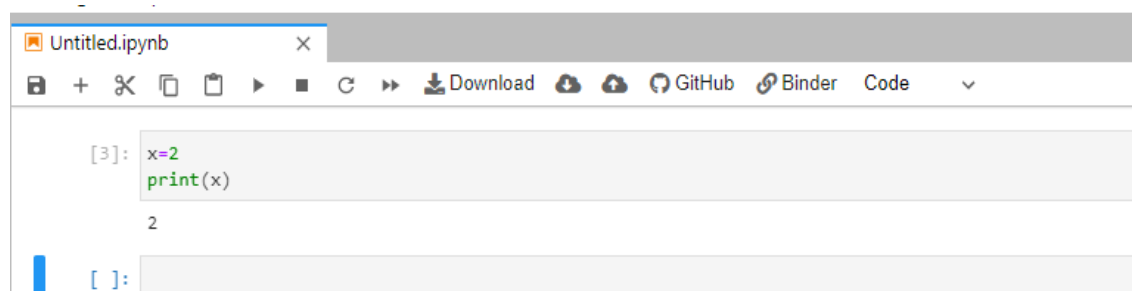
- a) Error
- b) Error
- c) Import sys
Sys.version
- d) print()
- e)

- I. **matplotlib.pyplot** is a collection of command style functions that make matplotlib work like MATLAB. Each pyplot function makes some change to a figure: e.g., creates a figure, creates a plotting area in a figure, plots some lines in a plotting area, decorates the plot with labels, etc
- II. **Pandas** is a predominantly used python data analysis library used to provide many functions and methods to expedite the data analysis process. pandas is common because of its functionality, flexibility, and simple syntax.
- III. **PyLab** is a convenience module that bulk imports matplotlib.pyplot (for plotting) and NumPy (for Mathematics and working with arrays) in a single name space
- IV. **NumPy** is a general-purpose array-processing package. It provides a high-performance multidimensional array object, and tools for working with these arrays.

It is the fundamental package for scientific computing with Python.

- V. **%matplotlib inline** sets the backend of matplotlib to the 'inline' backend:

With this backend, the output of plotting commands is displayed inline within frontends like the Jupyter notebook, directly below the code cell that produced it. The resulting plots will then also be stored in the notebook document.



```
[3]: x=2
     print(x)

2

[ ]:
```



```
[1]: import math
     print("The value of cosine of is:",end="")
     print(math.cos(90))

The value of cosine of is:-0.4480736161291701

[ ]:
```



```
[1]: import math
     print("The value of 10000 is:",end="")
     print(math.log(10000))

The value of 10000 is:9.210340371976184

[ ]:
```

QUESTION TWO

- a) Software Development Life Cycle, SDLC for short, is a well-defined, structured sequence of stages in software engineering to develop the intended software product

b) Requirement Gathering

This step onwards the software development team works to carry on the project. The team holds discussions with various stakeholders from problem domain and tries to bring out as much information as possible on their requirements.

- ✚ **Software Design.** Next step is to bring down whole knowledge of requirements and analysis on the desk and design the software product. The inputs from users and information gathered in requirement gathering phase are the inputs of this step.

- ✚ **Implementation.** This means installing the software on user machines. At times, software needs post-installation configurations at user end. Software is tested for portability and adaptability and integration related issues are solved during implementation.

- ✚ **Testing.** Errors may ruin the software from critical level to its own removal. Software testing is done while coding by the developers and thorough testing is conducted by testing experts at various levels of code such as module testing

- ✚ **Integration.** Software may need to be integrated with the libraries, databases, and other program(s).

- ✚ **Operation and Maintenance.** This phase confirms the software operation in terms of more efficiency and less errors. If required, the users are trained on, or aided with the documentation on how to operate the software and how to keep the software operational

c). Creational patterns are ones that create objects, rather than having to instantiate objects directly. This gives the program more flexibility in deciding which objects need to be created for a given case.

Structural These concern class and object composition. They use inheritance to compose interfaces and define ways to compose objects to obtain new functionality.

Behavioral Most of these design patterns are specifically concerned with communication between objects

d). The main advantages of using a version control system include streamlining the development process, management of code for multiple projects and keeping a history of all changes within a code.

A version control software saves all the changes in a repository. Hence, if the developers make a mistake, they can undo it. At the same time, they can compare the new code with a previous version(s) to resolve their grievance. This can reduce human errors and unintended consequences to a great extent. A great fit for any web development company around the globe.

e). GitHub helps software teams to collaborate and maintain the entire history of code changes. You can track changes in code, turn back the clock to undo errors and share your efforts with other team members.

GitLab comes with a lot of handy features like an integrated project, a project website, etc. Using the continuous integration (CI) capabilities of GitLab, you can automatically test and deliver the code.

The screenshot shows a web browser window with multiple tabs open. The active tab is the GitHub profile page for 'Botrus-Dabi'. The browser's address bar shows 'github.com/Botrus-Dabi'. The GitHub navigation bar at the top includes links for 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. The profile section on the left features a circular avatar with a red and white pixelated pattern, the username 'Botrus-Dabi', an 'Edit profile' button, and a status 'Joined 9 minutes ago'. The main content area is titled 'Overview' and displays 'Popular repositories' with the message 'You don't have any public repositories yet.' Below this, it shows '1 contribution in the last year' with a 'Contribution settings' dropdown. A contribution graph is displayed as a calendar grid from July to June, with a single green square on June 27th. A text box explains the contribution graph and provides a link to 'Read the Hello World guide'. The Windows taskbar at the bottom shows the search bar and various application icons, with the system clock indicating 17:23 on 27/06/2021.

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github.com/Botrus-Dabi

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You don't have any public repositories yet.

1 contribution in the last year Contribution settings

Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

Mon

Wed

Fri

Learn how we count contributions Less More

This is your **contribution graph**. Your first square is for joining GitHub and you'll earn more as you make [additional contributions](#). More contributions means a darker green square for that day. Over time, your chart might start looking [something like this](#).

We have a quick guide that will show you how to create your first repository and earn more green squares!

[Read the Hello World guide](#)

Type here to search

17:23 27/06/2021

QUESTION 5

a) **Code Review**, or Peer **Code Review**, is the act of consciously and systematically convening with one's fellow programmers to check each other's **code** for mistakes, and has been repeatedly shown to accelerate and streamline the process of software development like few other practices can.

b) ,
Consistent design and implementation

Code peer review can enforce a consistent coding style throughout a project, thereby making source code readable by anyone who might be introduced to the project at any given time during development.

Minimizing mistakes and their impact. This might seem like the most obvious advantage to the code peer review process, but it's also one of the most important

Ensuring project quality and meeting requirements. The scope of any given software project and its requirements might run through the hands of several developers

Improving code performance. Due to the lack of experience, some younger developers might be unaware of optimization techniques that could be applied on their code

Sharing new techniques. During a code review, developers can also share new technologies and techniques with each other.

c).

1. Technical code reviews They are led by senior software developers or engineers to review compliance to project specifications. They check for code defects, that it works as intended, and determine if it is ready to advance to the next step. Manager presence is usually optional.

2. Inspections. This are led by a facilitator and usually peers (but absent managers). Inspections are used to identify code defects, deviations of standards and specifications; as well as recommend remedial actions.

3. Walkthroughs Led by the code's author with other team members (absent managers) to find code defects and identify better solutions to improve the product. Walkthroughs can also be used to train and educate team members about the product.

4. Management reviews Used by project managers and team leaders to make sure suitable progress is being made and is in conformance with QA standards.

d). Public APIs. A public API is open and available for use by any outside developer or business. An enterprise that cultivates a business strategy that involves sharing its applications and data with other businesses will develop and offer a public API.

