Proposal

For

ITW202 Mini Project

Bachelor of Science in Information Technology

Gyalpozhing College of Information Technology

GCIT Enrollment Number Generator

Submitted by

SAMTEN WANGMO (12190073)

Read carefully before filling the form.

1 Please do not alter the layout of the application form. Information must be filled in the spaces provided, under set format.

2 Guidance notes in various fields should not be deleted.

3 Required information should be duly filled in the specified fields.

4 Required heads/fields which are not relevant to the project should be marked **N/A** (Not Applicable) or left blank and should not be deleted.

Guidelines and Forms

Submission Procedure

Duly filled proposal forms completed in all respects should be submitted in form of soft copy and a hard copy to project guide and project coordinator. On receipt of the applications the proposals will be evaluated by reviewer panel and proposal would then be defended by student groups. The project group may need to revise the proposal in light of the evaluator's recommendations.

For further information, please contact:

Project Coordinator

Jigme Wangmo
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Gyalpozhing College of Information Technology

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Application for Final Year Project

1. Project Identification

A **Reference Number:** (for office use only)	
A **Project Title**: GCIT Enrollment Number Generator	

A **Project Internal Guide:**

Name:	Sonam Wangmo
Designation:	Associate Lecturer
Organization:	Gyalpozhing College of Information Technology
Mobile # :	17970464 Tel. # :
Email:	sonamwangmo.gcit@rub.edu.bt

C1. **Project External Guide:**

Name:	**NA**
Designation:	
Organization:	
Mobile # :	Tel. # :
Email:	

C2. **Student Group Lead:**

Name:	
Roll No:	
Department:	
Mobile # :	Tel. # :
Email:	

A	**Organizations Involved in the Project:**	
	(Please identify all affiliated organizations collaborating in the project, and describe their role/contribution to the project.)	

D1.   Industrial Organizations:

#	Organization Name	Role / Contribution
	NA	

D2.   Academic Organizations:

#	Organization Name	Role / Contribution

D3.   Funding Organizations:

#	Organization Name	Role / Contribution
	NA	

A	**Key Words:**
	(Please provide a maximum of 5 key words that describe the project. The key words will be incorporated in our database.)
	Generate, Department, Enrollment number, Random and Category.

A	**Research and Development Theme:**
	To create an app that serves as a platform where the user can easily get the enrollment number along with the name of different students categorized base on their respective group and can generate the random enrollment number of the students.

A	**Project Status:**
	(Please mark ☑)
	☑ New ☐ Modification to previous Project
	☐ Extension of existing project

A Project Duration:

Expected Starting Date:	9th February 2021
Planned Duration in months:	Four months

2. Scope, Introduction and Background of the Project

A   Scope of the Project:

Limited to GCIT (Gyalpozhing College of Information Technology).
The purpose of this project is to ease in finding out the enrollment number of different students in order to generate the random enrollment number from it.

The proposed system consists of the following features:

Category: Allows user select a particular class categorized based on the department, year and group.

List: Will display the name and enrollment number of different students in a particular class.

Min: Allow users to enter a minimum enrollment number.

Max: Allow user to enter a maximum enrollment number.

Generate: Will generate a random number along with the name from the list by clicking on it.

B Introduction (Project Background and Literature Review, Current State of the Art):

(Detailed summary of what all has been done internationally in the proposed area quoting references and bibliography. Please note that this section demonstrates the depth of knowledge of the project team and builds the confidence of the evaluators about capability of the team in achieving the stated objectives.)
(Please describe the current state of the art specific to this research topic.)

Project Background

In this era of the world where technology is taking its toll in modernization, digitization and automation in any field of work is nothing new for us to see. What required excessive traveling and expenditure then now people do things with the tip of their fingers sitting on a couch from their home; all made possible by advancement of technology and introduction of smart phones. Talking about easing of work-load in this digital world, the process of generating a random number from a group of numbers is a few. A random number generator(RGN) is a mathematical construct, either computational or as a hardware device, that is designed to generate a random set of numbers that should not display any distinguishable patterns in their appearance or generation, hence the word random.

Also, random number generator is a process which, often by means of a random number generator (RGN), generates a sequence of numbers or symbols that cannot be reasonably predicted better than by a random chance. Random number generators have applications in gambling, statistical sampling, computer simulation, completely randomized design, and other areas where producing an unpredictable result is desirable.

In school and colleges, it is most often used by the teachers to pick a random student to do certain tasks. Again, not only teachers but also the students and student's representatives make use of it to select number of students for co-curricular activities like dancing, games, declamation, speech and etc. But before it, they make use of papers to write the roll number or the name of a students to select among many students. It leads to a tedious work where it consumes time while writing all the list manually. Not only this, there is high chance of manipulating the list or also making mistakes while writing it and picking from among those lists since people nowadays especially students are very tricky.

GCIT Random Enrollment Number therefore addresses aforementioned problems and aims to ease the workload for both students and lecturers not only by saving time but also by identifying the students holding the particular enrollment number thereby avoiding any mistakes in randomly picking the students.

GCIT Random Enrollment Number is app-base system to select or randomly generate enrollment number of a student. It will also allow users to view all the students base on the department, year and group along with their name and enrollment number.

Literature Review:

Though the world is taking its toll in modernization, digitization and automation in any field of work with advanced technology, we can still see that the peoples are not making the effective use of those technologies. GCIT Enrollment Number is an app where it provides platform for GCIT users to generate the random enrollment number of different students.

As per the reviewed literature, Random number generator by UX Apps (2019), it has around 8000 users and this app can be used as:

1) Random number generator (very small, very bug and decimal numbers supported, no limitations).
2) Random list item picker (you can create your own list and get random value from it).
3) Random name picker (to use it as random name picker, choose list mode, enter your name and press main random button).
4) Dice roller (different dice quantity supported)
5) An app for casting lots with your friends (no more disputes needed, just randomness).
6) Can generate all this stuffs.

The difference between the reviewed literature and this project is that it not only generates the random number but also picks the list of items, name with other features like dice roller, coin flipper and many more. Whereas, in my application, it deals with only the enrollment numbers of students and cannot create your own list as well as name and get a random value from it. Also, in this app, there will be list of all the students name and enrollment number categorized base on their department, year and group so that the user can check the name of the student holding the particular enrollment number where as in the reviewed literature, there is no name or any type of information stored, all the list from where to generate a random number should be typed.

Current State of the Art: There is no such appropriate platform or an app from where we can view the name of all the students of GCIT with their enrollment number and generate a random enrollment number from those list of students. Most of the students and student class representative (cr) as well as teachers uses traditional way of picking the random students where they write the name or roll number on a piece of paper and fold or roll the paper to pick from it. Some uses the website that generates the random number. The lecturer as well as most of the students are not aware of how many students are there, the starting enrollment number, last enrollment number and even the name of some students. To pick a random student, they have to ask the student's starting and ending enrollment number and there is chance of making mistake as they might not know it. Also, some students might not respond though their enrollment number has been generated and replace someone on their behalf specially during the new lecturer's class or other staffs who might not know about the students of that class.

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C) Challenges:

Meeting the time schedule: Completing the project within the given time period.

Hardware failure: We might face hardware failure while developing the application.

Users requirements: The application might not fulfill all the requirements as per the users need.

D) Motivation and Need:

In schools and colleges, it's most frequently employed by the lecturers to select a random student to try and do bound tasks. Also, not solely lecturers however additionally the students and student's representatives build use of it to pick range of students for co-curricular activities like performing arts, games, declamation, speech and etc. However, before it, they make use of papers to jot down the roll range or the name of a students to pick among several students. It results in a tedious work where it consumes time while writing all the list manually. Not solely this, there's high probability of manipulating the list or additionally creating mistakes while writing it and selecting from among those lists since individuals these days particularly students are terribly difficult. GCIT Random Enrollment number thus addresses same issues and aims to ease the workload for students and lecturers not solely by saving time however additionally by identifying the students holding the actual enrollment range thereby avoiding any mistakes at random selecting the students. GCIT Random Enrollment range is app-base system to pick or at random, generate enrollment number of a student. It'll provide users to look at all the students base on the department, year and class beside on their name and enrollment number.

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3. Aim and Objectives of the Project

(Please write the actual aim of your project. Also, describe the measurable objectives of the project and define the expected results. Use results-oriented wording with verbs such as 'to develop..', 'to implement..', 'to research..', 'to determine..', 'to identify..' The objectives should not be statements and should not include explanations and benefits. The objective should actually specify in simple words what the project team intends to achieve (something concrete and measurable/ deliverable). Fill only those objectives that are applicable to the proposed project.)

AIMS: To develop an application for GCIT students and staffs to generate the random enrollment number of the students along with their name.

OBJECTIVES :

The specific objective of this project are:

1. To build android application that will be used by almost all student, staffs of Gyalpozhing College of Information Technology.

2. To easily generate the random enrollment number of GCIT students.

3. To view and find out the list of students in each class with their name, categorized base on department, year and group.

4. Exclude the use of paper works.

5. Safe time and reduce human interventions (easily accessible).

6. To provide a flexible service where the app can be used at any point of time and anywhere as the app will be offline based android application.

4. Methodology

A Development / Research / Test Methodology:

(Please describe the technical details and justification of your development and research plan and test plan and testing strategies. Identify specialized equipment, facilities and infrastructure which are required for the project and their utilization plan. The block diagrams, system flow charts, high level algorithm details etc. have to be provided in this section. Also, describe the overall methodology to be used for the particular research topic)

Requirement Gathering

I will be gathering requirements through reviewing the existing apps and discussing with other students as well as lecturers. I have done the interview with the some of the lecturers and students of GCIT to check the feasibility of the project.

Requirement Analysis

In this stage, will be further analyzing the gathered requirements and will eliminate some unnecessary requirements and take in new requirements if any.

Design

Taking into account of requirements from the requirement analysis, will start with the designing of prototype as well as ER diagram for our project.

Coding

After requirement gathering and designing is completed designing the prototype, will start with implementation where I will develop the app using android studio with programming language like java.

Testing

Each functionality will be tested right after it is developed. The process of testing each functionality separately is called unit testing. Unit testing will be carried out thoroughly for each module followed by integration testing, system testing and acceptance testing. If any functionality doesn't works as expected, it can always go back and verify from the previous phases.

Agile model

Agile model refers to a software development approach based on iterative development. Agile methods break tasks into smaller iterations, or parts do not directly involve long term planning. The project scope and requirements are laid down at the beginning of the development process. Plans regarding the number of iterations, the duration and the scope of each iteration are clearly defined in advance. The division of the entire project into smaller parts helps to minimize the project risk and to reduce the overall project delivery time requirements.
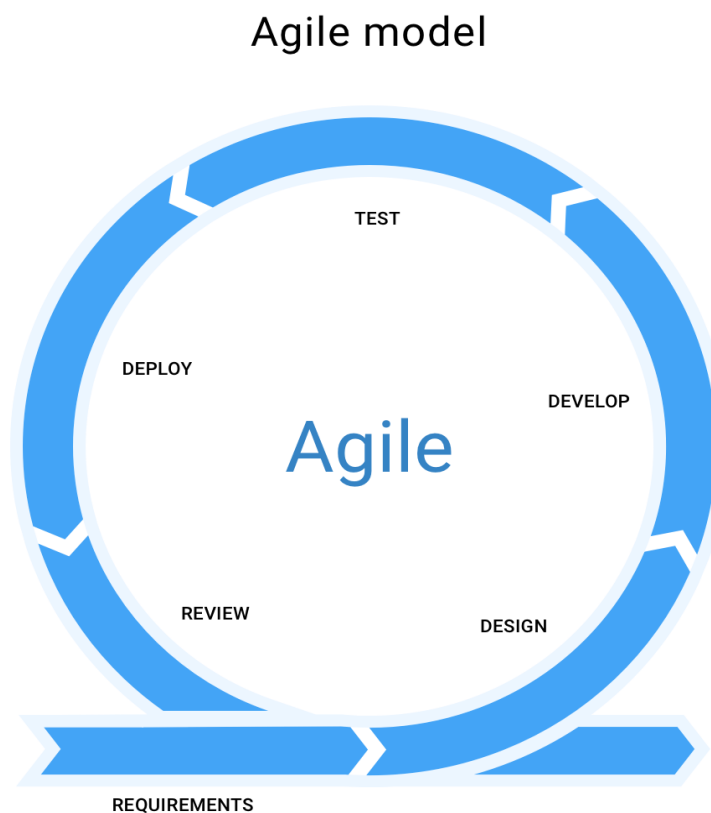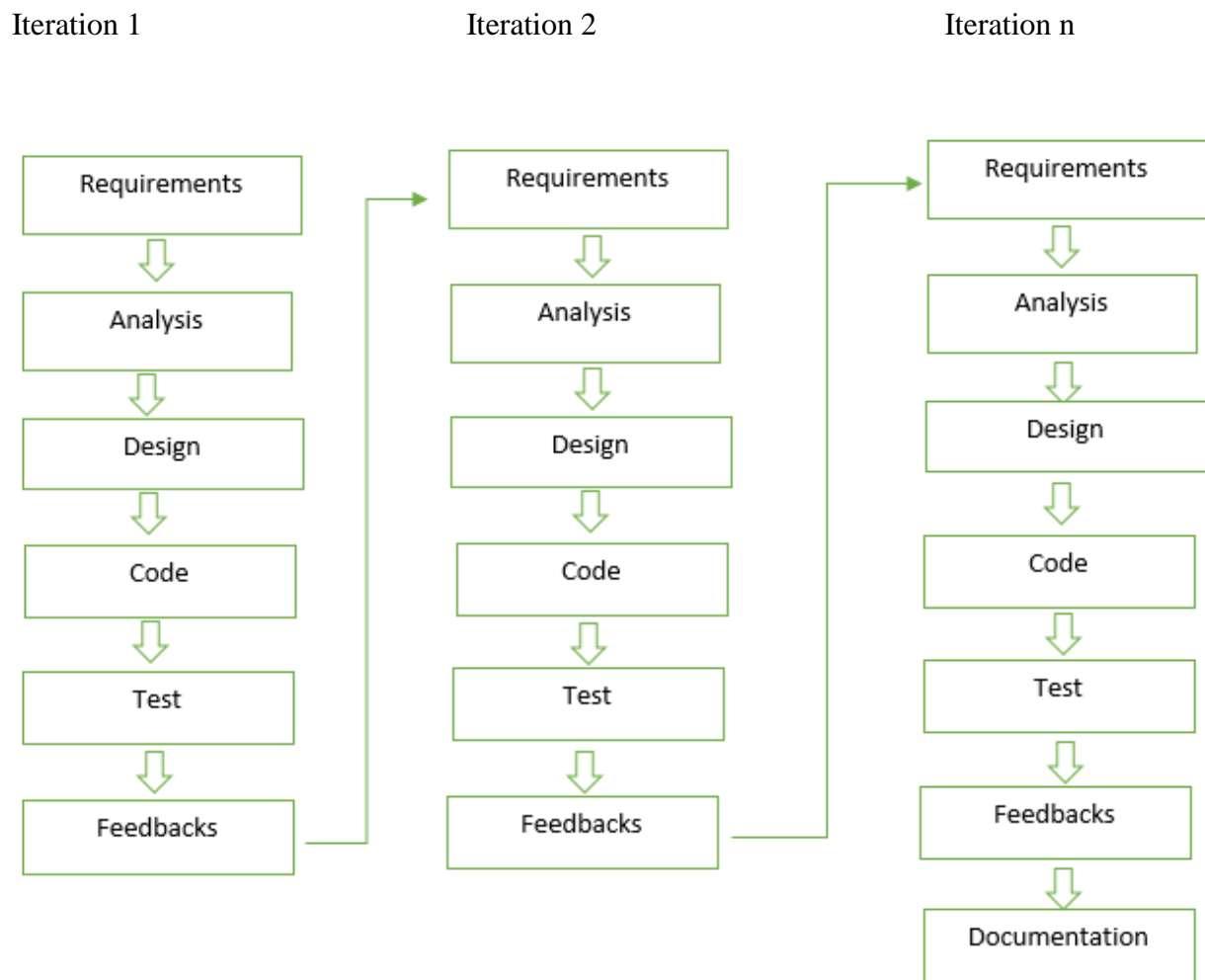
Figure 1.0: Agile model

Iteration 1   Iteration 2   Iteration n

Fig 1.1: Agile Development Model

Documentation

To provide evidence of progress in the development process and to monitor the process as well as to record information that can help support the proper treatment plan and the reasoning for such services, documentation is must. Also without proper document, it will be difficult for future progress.

Finally, after completing the coding and fulfilling all the required features for the application, project document is made.

A	Project Team:	
Title / Position		**Number**
Project Internal Guide		
Project External Guide		
Student Team Members		
Others (please specify)		
Add more rows if required		

A Project Activities:

(Please list and describe the main project activities, including those associated with the transfer of the research results to customers/beneficiaries. The timing and duration of research activities are to be shown in the Gantt chart in Section 8.)

Installation of software and tools: Installing android studio latest version and database server.

Resource gathering: Gathering resources like similar apps, book, video tutorials, and online research on app development.

Design phase: The system design shows the blueprint of any system that is to be developed. It gives the very detail about every components of the system that is to be built like designing user interface, functionalities, and flow of information.

Development of app: From this stage, I will develop an app using android studio framework.

Testing: It will go under testing stage where each unit is check properly regarding functionality and it endure to produce desire function.

Documentation: After completing all phases, will document the project report and present it through presentation.

1) Key Milestones and Deliverables:

(Please list and describe the principal milestones and associated deliverables of the project. A key milestone is reached when a significant phase in the project is concluded, e.g. selection and simulation of algorithms, completion of architectural design and design documents, commissioning of equipment, completion of test, etc.) The timing of milestones is also to be shown in the Gantt chart in Section 8.

No.	Elapsed time from start (in months) of the project	Milestone	Deliverables
1	09/02/2021-23/02/2021	Topic selection	Accepting the project topic by the module tutor.
2	25/02/2021-14/03/2021	Brainstorming, feasibility study and survey	Project proposal.
3	15/03/2021-25/03/2021	Requirement gathering and Analysis.	Software requirement gathering document and prototype development
4	26/03/2021-30/03/2021	Software Installation	Setting environment for the development.
5	31/03/2021-12/04/2021	System Design	ER Diagram, Use case, and data flow diagram.
6	13/04/2021-01/05/2021	Development/coding	Source code and functional features implementation.
7	02/05/2021-15/05/2021	Testing Implementation	Test case
8	16/05/2021-22/05/2021	Final Documentation	Documentation ready/ presentation

Some of the Benefits are:

Accessibility: Provide a fast and efficient interface for easy access to view all the enrollment number along with the name of all the students of GCIT.

Verification: while generating the enrollment number of students, it can be verified through the list such as number of students, their name, class, year and department.

Flexibility: App will provide services at any point of time, and anywhere since it is offline based android application.

Satisfaction:-Student and staff will achieve satisfaction as all information provided will be fair and transparent

5. Benefits of the Project (Expected output/outcomes):

6. Risk Analysis/Feasibility

A Risks of the Project:

(Please describe the factors that may cause delays in, or prevent implementation of, the project as proposed above; estimate the degree of risk.)

(Please mark ☑ where applicable)	Low	Medium	High
Technical risk		☑	
Timing risk			☑
Budget risk	[]		

A1. Comments(Describe the risk):

Timing risk: Developing the application within the given time frame would be a difficult task as
- ✓ Project time period is less.
- ✓ Being this my first attempt in developing an android application completing as per schedule will be difficult.
- ✓ Might not be able to achieve the goal due to external college activities.

Technical risk:.
- ✓ It will be difficult for to handle any crashes or malfunction in software as I am not use to it.

Budget Risk: There is no budget risk because I don't have to buy any software or technology. This project can be done using free software available on internet**.**

Feasibility Study: To check the feasibility of the project, I have done an interview with some staffs and students in GCIT. After analyzing the current situation and their responses, it shows that it will be feasible to develop this application in GCIT.

7. Project Approval Certificate

(Approval of Project Proposal by the Competent Authority (Department Chairman) and Project Review Team is mandatory before the start of project execution.)

Project Review Team:

SI #   Name   Signature

(Please add more rows if required.)

Project Coordinator

Name:

Designation:

Email:

Date: Signature:

Competent Authority – Head of Department
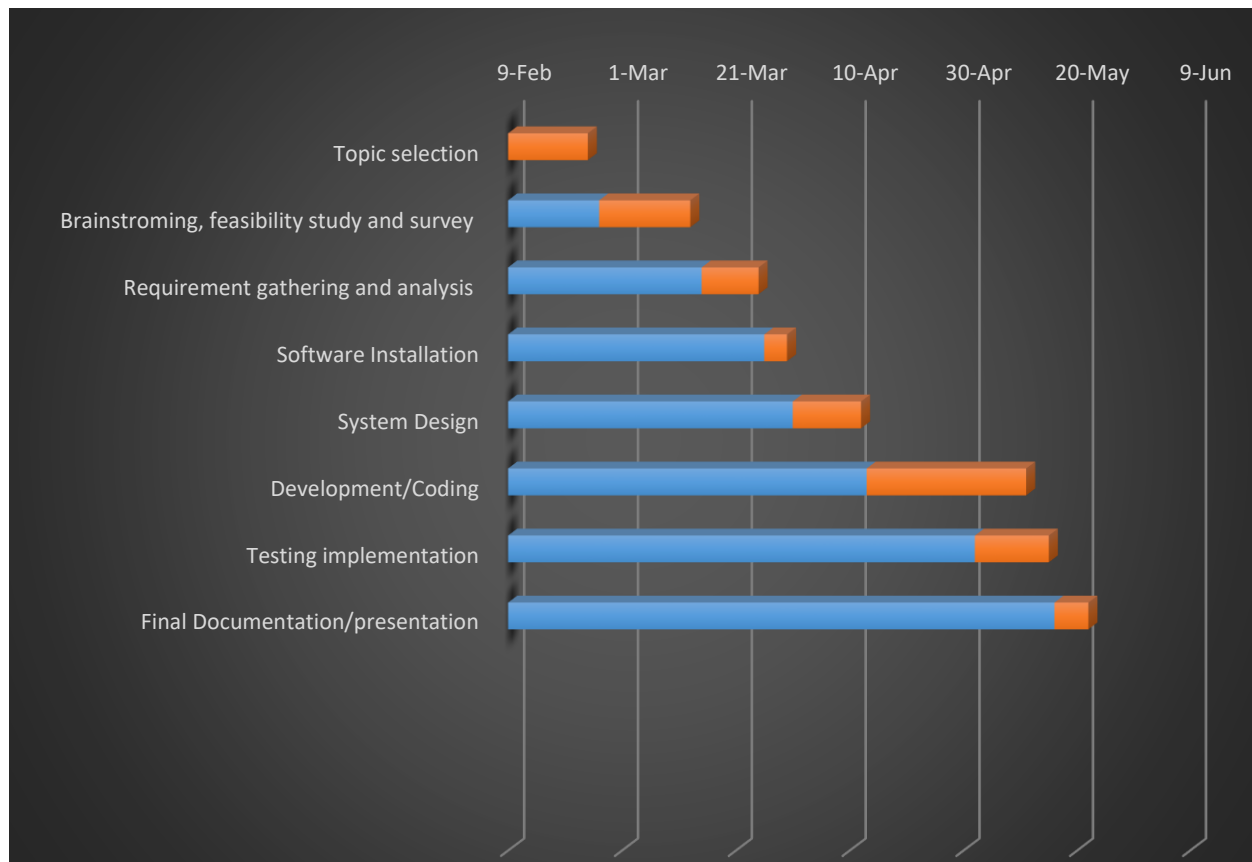
Name:

Designation:

Email:

Date: Signature

& stamp:

8. Reviewers Panel Comments

10. Project Schedule / Milestone Chart /Work plan

(Project schedule using MS-Project (or similar tools) with all tasks, deliverables, milestones, clearly indicated are preferred. Task should be measured in terms of hours)

Figure 1.3: Timeline

13. Report Writing Guidelines

(Project report will be written under the specified guidelines.)

Bibliography

Random number generation. (2021, March 05). Retrieved March 11, 2021, from https://en.wik-ipedia.org/wiki/Random_number_generation

Home. (n.d.). Retrieved March 11, 2021, from https://www.calculator.net/random-number-generator.html

Arobelidze, A. (2020, October 26). Random number generator: How do computers generate random numbers? Retrieved March 11, 2021, from https://www.freecodecamp.org/news/random-number-generator/

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